WASHAKIE

Resource Management Plan
Record of Decision

RECORD OF DECISION
and
APPROVED RESOURCE MANAGEMENT PLAN
for the
WASHAKIE RESOURCE AREA

Prepared By:

U.S. Department of the Interior
Bureau of Land Management
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September 1988

Hillary A. Oden
Wyoming State Director

9-2-88
Date

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Record of Decision

RECORD OF DECISION FOR THE WASHAKIE RESOURCE MANAGEMENT PLAN

This document records the decisions made by the Bureau of Land Management (BLM) for managing approximately 1.23 million surface-acres of public land and approximately 1.6 million acres of federal mineral estate in the Washakie Resource Area.

DECISION

The decision is to select and approve the attached resource management plan for the Washakie Resource Area. The attached plan also fulfills the requirement for the Rangeland Program Summary. Copies of the documents on which this plan is predicated, including the draft Washakie Resource Management Plan/Environmental Impact Statement (RMP/EIS) and the Proposed Washakie RMP/Final EIS, may be viewed at the Washakie Resource Area office.

The selection and approval of the Washakie RMP is based on the consideration of four planning issues (Affects on Vegetative Resources, Special Designations, Affects on Water Resources, and Adequacy of Resource Accessibility and Manageability), the analysis of environmental impacts of five alternative management plans, public comments, and consultation with federal, state and local government agencies. The attached plan is the proposed RMP found in the Washakie RMP/FEIS published in November 1987. It represents the BLM's preferred management plan alternative for the Washakie Resource Area and the environmentally preferred alternative in terms of minimizing environmental impacts and guiding the uses of the public lands in the resource area.

The BLM's recommendations to the Secretary of the Interior on the Cedar Mountain, Honeycombs, Alkali Creek, Medicine Lodge, and Trapper Creek wilderness study areas (WSAs) are being made in the Final Washakie Wilderness EIS and are not a part of this document at this time. The decisions regarding wilderness are ultimately made by Congress and will be incorporated into this plan at a later date. A detailed description and analysis of wilderness issues are in the Washakie Wilderness EIS.

SPECIAL MANAGEMENT AREA DESIGNATIONS

Approximately 11,200 acres are designated as the Spanish Point Karst Area of Critical Environmental Concern.

About 241,000 acres on portions of the west slope of the Bighorn Mountains will be designated as a Special Recreation Management Area (SRMA).

About 59,000 acres along the Bighorn River from the Wedding of the Waters downstream to Shell Creek also will be designated as an SRMA.

The remainder of the resource area (about 934,000 acres) will be designated as an Extensive Recreation Management Area (ERMA).

PROTESTS RECEIVED

During the 30-day protest period on the Washakie proposed RMP/FEIS, two protests were received. Mr. Lynn Jacobs submitted a protest related to the use of the public lands for livestock grazing. Mr. Jacobs later stated he was not protesting the plan but was offering additional comments. A protest was received from the Rocky Mountain Oil and Gas Association (RMOGA) on two issues: the BLM's authority to impose use stipulations on federal oil and gas leases issued on split estate lands, and the BLM's apparent failure to use its withdrawal authority instead of a leasing closure to preclude the issuing of oil and gas leases in the Spanish Point Karst ACEC. The protest (both issues) was resolved and had no affect on the Washakie RMP decisions. As part of this resolution, it is affirmed that, at the time Applications for Permit to Drill (APD) are submitted for split estate lands, "Negotiations among the surface owner, operators and the BLM may be undertaken to incorporate specific needs of the surface owner."

During the public comment and protest periods for the Washakie RMP/EIS, it was brought to our attention that there is confusion and misunderstanding about the types and extent of oil and gas exploration and development activities considered during development of an RMP. To help alleviate this situation, we have included an appendix, Appendix A—Oil and Gas Operations, to the approved Washakie Resource Management Plan (attached). This appendix is a summary description of oil and gas operations considered during the Washakie RMP/EIS process.

ALTERNATIVES CONSIDERED IN DETAIL

Five alternative plans were considered in detail in the RMP/EIS. All the alternatives are multiple-use oriented. Each alternative provides for resource production and environmental protection.

Alternative A is the continuation of current management (no action). This alternative would continue the existing management and uses of the public lands and resources at their present levels.

Alternative B emphasizes developing and using natural resources. It still provides for environmental protection but the major emphasis is on resource development.

Alternative C provides more emphasis on the protection of the environment than either Alternative A or Alternative B, but it still allows resource use. Alternative C is the same as the preferred alternative with three exceptions: the management prescriptions for leasable minerals (oil and gas), wild horses, and watershed.

Alternative D emphasizes the protection and enhancement of environmental quality. It limits uses and development of resources that do not protect or enhance the quality of the natural environment.

The preferred alternative generally allows resource use with greater emphasis on protection of the natural environment than Alternatives A or B. The preferred alternative is made up of the management prescriptions for wild horses and watershed management from Alternative D, a combination of leasable mineral prescriptions from Alternatives B, C, and D, and the remaining resource management prescriptions from Alternative C.

The approved Washakie Resource Management Plan is essentially the proposed plan described in the final EIS and the preferred alternative described in the draft EIS, with some changes as a result of public comment.

ALTERNATIVES ELIMINATED FROM DETAILED STUDY

Three management options considered but eliminated from detailed study are described in the draft Washakie RMP/EIS. The elimination of livestock grazing from all public lands in the resource area was considered as a possible method of resolving some of the planning questions related to the vegetative resources issues. Ceasing the harvest of all forest products was considered as a means to eliminate the loss of certain types of wildlife habitat. The use of options that proposed maximum, development, production, or protection of one resource throughout the planning area, at the expense of other resources was considered but was deemed unreasonable. A fourth option, that of no leasing of oil and gas throughout the planning area, was considered but was not described in the draft RMP/EIS. This oversight was corrected in appendix M of the proposed RMP/FEIS.

PUBLIC PARTICIPATION

A public participation plan was prepared to ensure that the public would have numerous opportunities to be actively involved in the planning and environmental process. Both formal and informal input have been encouraged and used. Input from the public was gathered using several methods, including direct mailings, news releases, meetings, interviews, and the formal comment periods of the planning process.

Questionnaires were sent to approximately 650 persons in January 1983. The purpose of the mailing was to identify the issues in the resource area. In February 1983, a notice of intent to prepare a plan was published in the *Federal Register*. In June of 1984, a news release was issued and a notice mailed to 813 individuals, companies, groups, and governmental agencies to solicit views and comments on a set of proposed planning criteria. In November 1984, a letter requesting comment was mailed to 134 entities considered to have interests in mineral resources. A *Federal Register* notice and news release followed in February 1985 requesting comments specifically from anyone who may have interests in the coal resources of the Washakie Resource Area.

The Worland District Advisory Council has been kept apprised of the RMP progress and their comments and recommendations have been solicited and used. The members of the Council toured a portion of the Washakie Resource Area during a meeting on August 20, 1986, and viewed examples of the concerns identified in the plan. In two subsequent meetings, on December 12, 1986, and March 10, 1987, the council discussed the Washakie RMP/EIS and the draft Washakie Wilderness EIS.

Each operator of a grazing allotment has been contacted either in person or in writing to discuss the categorization of his allotment.

Formal and informal meetings have been held with many members of the ranching and minerals industries and with other interest groups and agencies. A summary of comments generated from these meetings is on file in the Washakie Resource Area office.

The ninety-day public comment period on the draft RMP/EIS and the draft Wilderness EIS ended February 19, 1987. During that period, a formal public hearing was held covering both the draft RMP/EIS and the draft Wilderness EIS. The Environmental Protection Agency (EPA) notice of filing of the proposed RMP/FEIS was published in the *Federal Register* on November 13, 1987 and the thirty-day protest period ended December 14, 1987.

A detailed description of the public involvement in the planning process, including the comments made on the draft RMP/EIS, is in chapter 5 of the proposed RMP/FEIS.

PLAN EVALUATION, MONITORING AND MITITATION

Evaluation and Monitoring

The actions identified in the resource management plan and initiated by the BLM, and those actions initiated by the public, will be tracked to determine if the management objectives of the RMP are being met. The effectiveness of the RMP determinations and related management prescriptions will be evaluated. If evaluation indicates that the RMP is not working as expected or the situation in the Washakie Resource Area changes, an amendment or revision of the RMP may be necessary.

Mitigation

The Washakie RMP provides the framework and guidance to make management decisions for the Washakie Resource Area. All decisions made under this plan will require adequate consideration of all affected resources and uses prior to implementation. All practicable measures will be taken to ensure that adverse impacts are mitigated in a manner consistent with the measures identified in the plan. The mitigating measures identified in the plan may be modified or expanded through environmental analyses for site-specific actions.

CONSISTENCY

This plan is consistent with the plans, programs, and policies of other federal agencies, state, and local governments, and those of the Department of the Interior and the Bureau of Land Management.

Hillary A Oden 9-2-88

Hillary Oden
Wyoming State Director
Bureau of Land Management

Date

Resource Management Plan

RESOURCE MANAGEMENT PLAN FOR THE WASHAKIE RESOURCE AREA

INTRODUCTION

This resource management plan (RMP) sets forth the general land management and use determinations for guiding and controlling future management actions in the Washakie Resource Area (map 1). This plan was prepared in accordance with the requirements of the Federal Land Policy and Management Act (FLPMA) of 1976 and the National Environmental Policy Act (NEPA) of 1969.

All land and resource uses and activities in the planning area must conform with the decisions, and terms and conditions of use described in this plan. Detailed decisions for the implementation of specific projects will be made through activity planning and environmental review that will be completed prior to the implementation of the project. Likewise, the authorization of specific uses will be predicated in conformance with planning decisions and completion of environmental review.

This document also fulfills the requirement for a rangeland program summary for livestock grazing in the Washakie Resource Area. The environmental impact statement (EIS) for livestock grazing is embodied in the EIS for the Washakie RMP.

Descriptions of the existing environment and the environmental consequences of all uses of the public lands in the planning area were previously addressed in the Washakie RMP/EIS and are not discussed in this document.

PLANNING AND MANAGEMENT DECISIONS

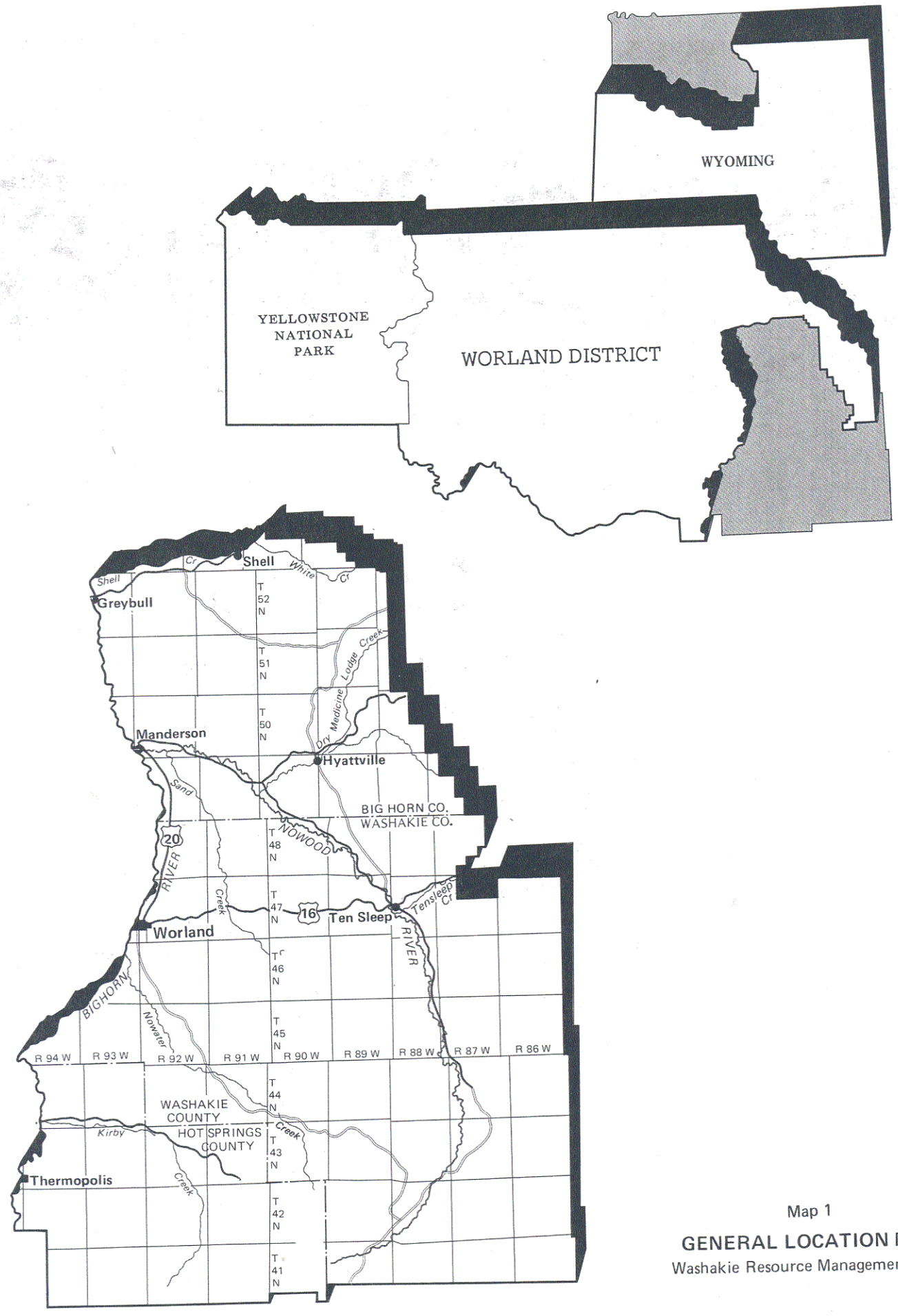
Wilderness Study Areas

The Washakie planning area contains five wilderness study areas (WSAs). The BLM will make preliminary recommendations as to the suitability or nonsuitability of each WSA for inclusion in the National Wilderness Preservation System, based on wilderness study reports and a final wilderness environmental impact statement. Those recommendations will be submitted to Congress through the Director of the Bureau of Land Management, the Secretary of the Interior, and the President. Whatever wilderness decisions are made by Congress will be made a part of the RMP. The detailed analyses and alternative management prescriptions for the WSAs are presented in the draft Washakie Wilderness EIS (the supplement to the draft Washakie RMP/EIS).

Spanish Point Karst Areas of Critical Environmental Concern

Resource Management Objective

To manage the 11,200-acre Spanish Point Karst Area of Critical Environmental Concern (ACEC)



Map 1

GENERAL LOCATION MAP

Washakie Resource Management Plan

to protect important cave resources, sinking stream segments, groundwater quantity and quality.

Management Actions

The Spanish Point Karst area (map 2) is designated an area of critical environmental concern.

All roads and vehicle trails in Dry Medicine Lodge Canyon above the dugway, will be closed and rehabilitated where accelerated erosion is occurring. Additional off-road vehicle (ORV) restrictions will be applied as described in the ORV discussion in this plan.

Logging and heavy equipment use restrictions will be applied on steep slopes and stream buffer zones.

The use of insecticides and herbicides will be considered on a case-by-case basis and, if approved, will be conducted under the following guidelines:

Noxious Weed Control

1. Before chemical control of noxious weeds is approved by the BLM thorough consideration will be given to all forms of physical and biological control, including, but not limited to hand pulling, the use of hand tools, mowing, prescribed burning, livestock grazing, and the use of insects.
2. If chemical application is determined to be the most economically acceptable and feasible method of control, the proposal shall detail the areas of infestation, the type and method of chemical control, the proposed location of any mixing facilities or storage tanks around the area, and a plan for the containment and clean-up of accidental spills of the chemical.
3. Aerial spraying will be discouraged.
4. The applicator will be required to conduct pre- and post-application water quality sampling to detect and control any surface water contamination that may occur.

Grasshopper Control

1. The preferred method of grasshopper infestation control will be biological, using the bacterium *Nosema locuste*.
2. If the Spanish Point Karst ACEC is within the boundaries of an Animal Plant Health Inspection Service (APHIS) designated economic grasshopper infestation zone, it will be flagged as a "no spray" area.

The use of silvicultural chemicals will be prohibited.

Basal vegetative cover will be managed to maximize (or maintain) ground cover in good or better ecological condition, commensurate with the potential of the ecological site.

A withdrawal from the nondiscretionary land laws, including mining claim location under the General Mining Law of 1872, will be pursued for the entire 11,200-acre ACEC pursuant to section 204 of FLPMA. The withdrawal will involve the federal mineral estate under private surface and under federal surface administered by the Forest Service (FS) and the BLM.

Agreements for the cooperative management of surface activities in watersheds on FS-administered and private lands will be pursued within and adjacent to the ACEC. To the extent possible, management prescriptions for these lands and those administered by the BLM will be compatible.

Minerals Management

Resource Management Objective

To continue to provide opportunities for the location, leasing, sale, exploration, development, and use of mineral resources consistent with current laws, regulations, and policies, including those related to environmental protection.

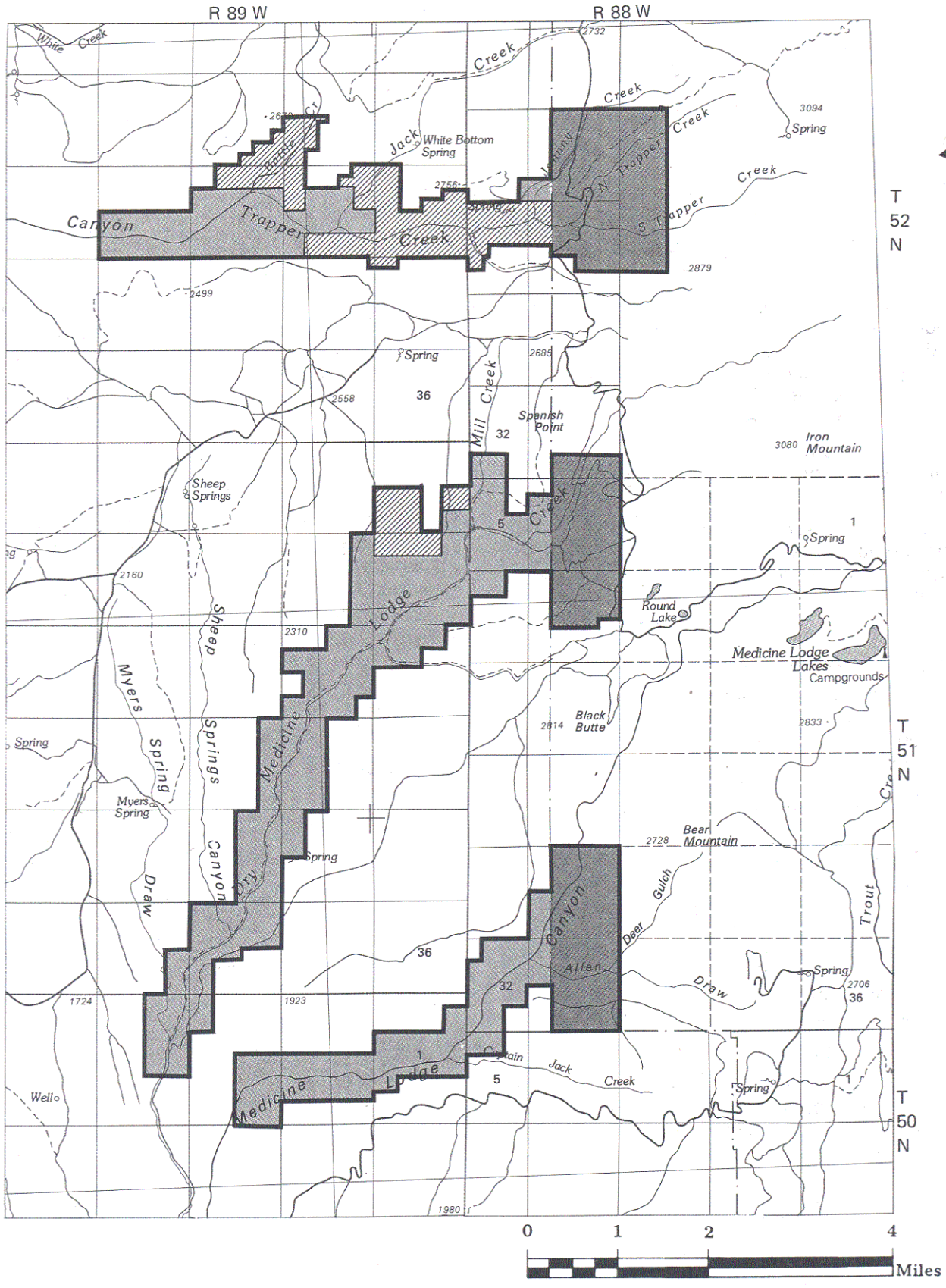
Management Actions

Leasable Minerals

Oil and Gas. All public lands not formally closed to leasing are open for consideration for exploration and development of oil and gas.

Oil, gas, and tar sands will be leased under the guidance for mitigating surface-disturbing activities in the Wyoming BLM Standard Oil and Gas Lease Stipulations (map 3).

After the issuance of a lease, reasonable and necessary conditions of approval will be applied to applications for permit to drill (APDs), Sundry Notices and any other use authorizations, to protect resource uses and values, consistent with the original intent of the lease. At the time the APD is being reviewed, negotiations among the sur-



ACEC Boundary

BLM Administered Surface and Subsurface

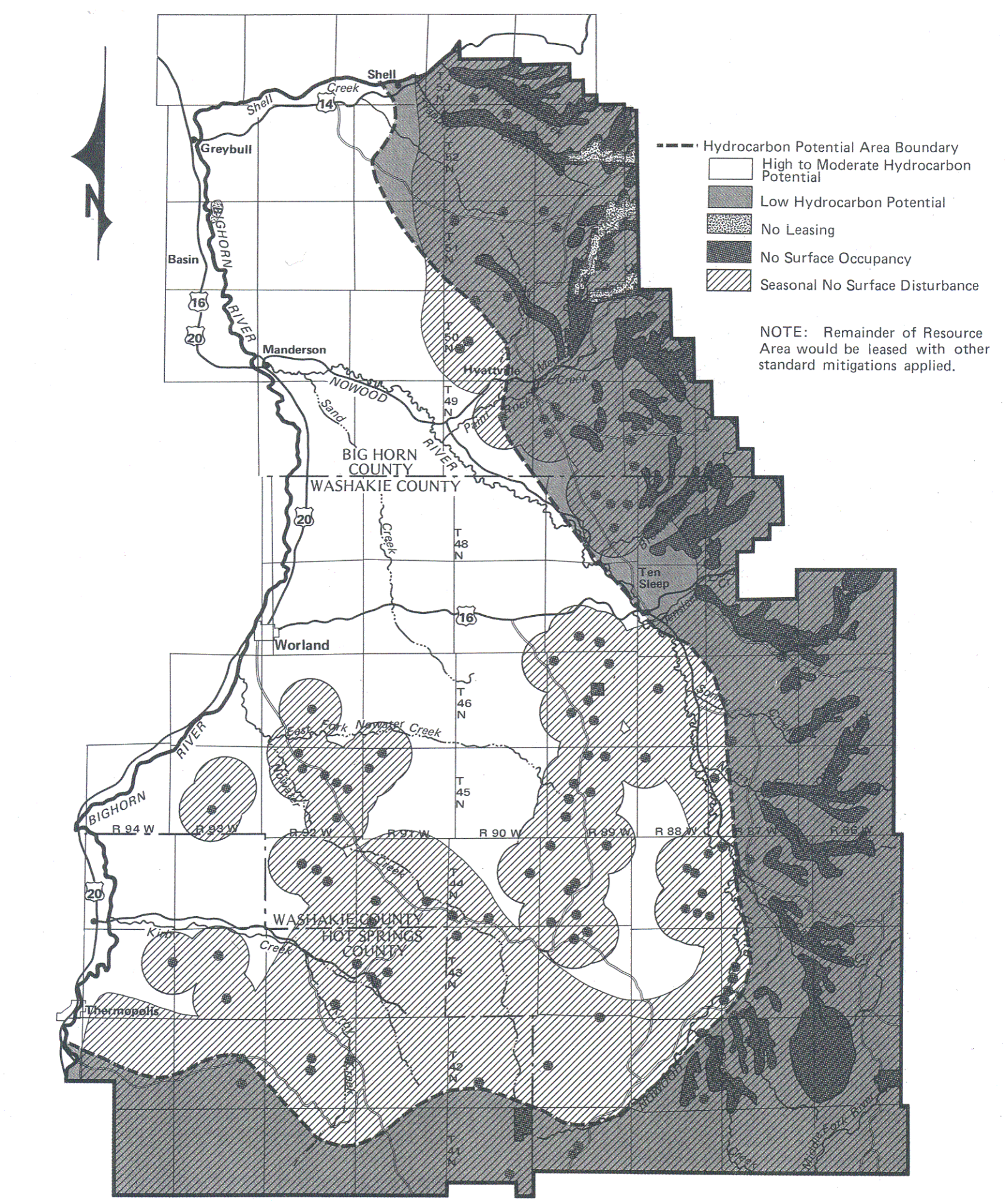
USFS Surface/BLM Administered Subsurface

Private Surface/BLM Administered Subsurface

Map 2

SPANISH POINT KARST ACEC

Washakie Resource Management Plan



Map 3
MINERALS MANAGEMENT
Oil and Gas Leasing
Washakie Resource Management Plan

face owner, operators, and the BLM may be undertaken to incorporate specific needs of the surface owner.

In the event exploration activities result in producing oil or gas wells, specific mitigation requirements for impacts to surface resource values will be developed, based on environmental analyses of plans of operation or development.

Approximately 11,200 acres of federal mineral estate in the Spanish Point Karst ACEC will be closed to leasing.

Approximately 86,100 acres of federal mineral estate will be leased with a "no surface occupancy" restriction to protect important wildlife habitat, and cultural and recreation sites.

Approximately 985,600 acres of federal mineral estate will be leased with seasonal restrictions to protect important wildlife habitat.

Approximately 520,000 acres of federal mineral estate will be leased with other standard surface protection restrictions applied.

Contingency plans for the release of hydrogen sulfide gas ("sour gas") are required for all drilling proposals which penetrate a known or suspected hydrogen sulfide-bearing formation.

Refer to appendix A for a description of activities related to the exploration, development, and production of oil and gas.

Coal. Coal exploration will be allowed under the guidance mitigating for surface-disturbing activities in the Wyoming BLM Standard Oil and Gas-Lease Stipulations. If an application for a coal lease is received sometime in the future, an appropriate land-use and environmental analysis, including the coal screening process, will be conducted to determine whether or not the coal areas applied for are acceptable for development and for leasing consideration. The RMP will be amended as necessary.

Geophysical Exploration

All proposals for geophysical exploration will be evaluated on a case-by-case basis. Suitable surface protection measures based on the guidance for mitigating surface-disturbing activities in the Wyoming BLM Standard Oil and Gas Lease Stipulations, and access restrictions (ORV designations) will be applied. Generally, geophysical exploration will not be allowed on BLM-administered surface that is closed to oil and gas leasing.

Locatable Minerals

All public lands not formally withdrawn or segregated from mineral entry will be open for the exploration and development of locatable minerals. If necessary, areas of special interest or high sensitivity will be formally withdrawn from mineral entry. In other situations, the regulations listed in 43 CFR 3809 and agreements made with the state of Wyoming pursuant to those regulations will be applied to reduce unnecessary and undue degradation of resources as a result of mining.

If necessary, additional areas with special values may be proposed for withdrawal from mineral location on a case-by-case basis.

Abandoned mine sites will be recommended for reclamation under the Abandoned Mined Land Program (map 4).

Salable Minerals

Sales and free use of salable minerals, such as sand and gravel, will occur in existing pits along the Bighorn and Nowood rivers and near Manderson and Ten Sleep. Any proposals for new material extraction sites will be subject to site specific analysis prior to approval.

Geologic Landmarks

Important geologic landmarks, including 14 known sites totaling about 150 acres, will be protected through the use of surface protection stipulations and discretionary management authority.

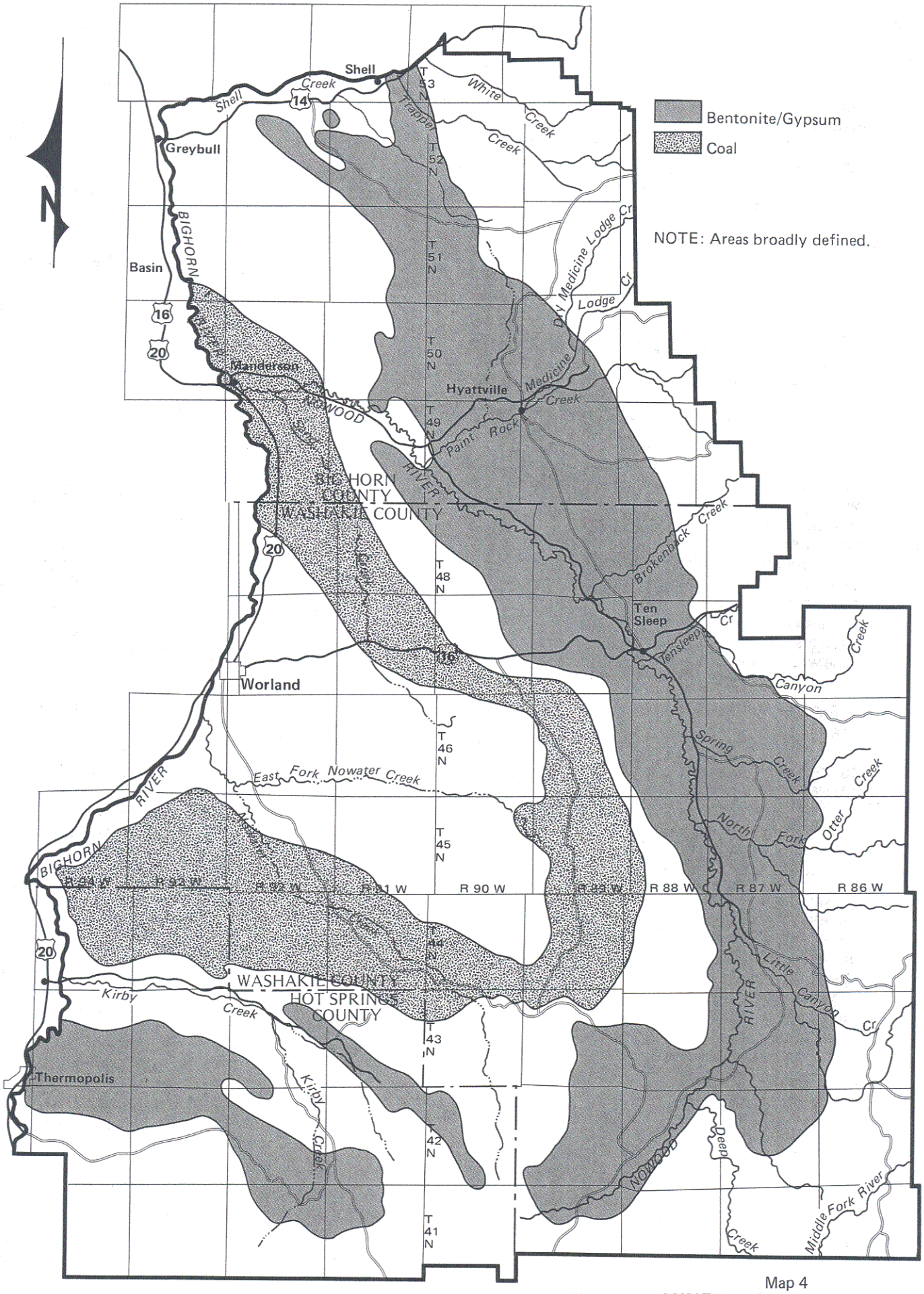
Land and Realty Management

Resource Management Objective

To provide opportunities for the long-term use of public lands and to provide for the disposal of public lands, consistent with current laws, regulations, and policies, including those related to environmental protection.

Management Actions

The disposal of public lands (e.g., transfer from the administration of the BLM to other federal



Map 4

MINERALS MANAGEMENT

Areas Where Abandoned Mine Sites May Occur

Washakie Resource Management Plan

agencies, or local or state governments, or disposal through methods such as desert land entry, public sale, exchange, state of Wyoming indemnity selection, or Recreation and Public Purposes leases or patents, will be considered on a case-by-case basis (map 5).

Prior to any disposal action, lands will be evaluated for compliance with the disposal criteria listed in appendix B of the proposed Washakie RMP/FEIS.

The use of disposal or exchange to resolve cases of agricultural trespass will be reviewed on a case-by-case basis.

The acquisition of non-BLM-administered lands to achieve management objectives will be considered on a case-by-case basis.

Public water reserves withdrawn under Secretarial Order 107 and other classification orders will be reviewed to determine if they meet the retention requirements of legal opinions of the solicitor of the Department of the Interior and of the agreement made between the Department of Justice (for the Department of the Interior) and the state of Wyoming regarding the adjudication of water rights in the Bighorn River drainage. Withdrawals will be terminated on those public water reserves that do not meet the retention requirements.

Existing transportation and utility routes for roads, pipelines, and power lines will be designated as right-of-way corridors, which would be the preferred location for existing and future right-of-way grants (map 6). Right-of-way corridors will include:

—Major linear rights-of-way zones, and
—Major short segment linear rights-of-way zones (as in oil fields).

Approximately 1,089,000 acres will not be included in designated corridors but will be available for rights-of-way under certain circumstances. Within this area, threatened and endangered species habitat will be classed as right-of-way exclusion areas. Right-of-way avoidance areas will include:

—The Spanish Point Karst ACEC
—Potential threatened and endangered species habitat and wetland/riparian habitat
—The Medicine Lodge, Renner, and Billy Miles wildlife HMUs
—Semiprimitive nonmotorized areas, and
—Cultural resource sites.

Power line construction will not be allowed within one-half mile of bald eagle nests. Power line construction in sensitive wildlife habitats and across streams will be required to incorporate standard or special design features to reduce bird collisions and reduce impacts to habitat. Additional power line construction limitations will be applied on a case-by-case basis in special situations to reduce bird collisions.

Classification and Multiple Use Act retention and disposal classifications (orders W-12616 and W-12617) on approximately 144,500 acres in Hot Springs County will be terminated.

The administrative site withdrawal associated with Worland's Green Hills Municipal Golf Course will be terminated to allow the city to apply for a Recreation and Public Purposes patent.

Forest Management

Resource Management Objective

To enhance watershed, wildlife, and forest values through the maintenance of a viable and healthy timber base.

Management Actions

Fuelwood will not be harvested in riparian areas unless conducted to improve fish and wildlife habitat. Cottonwood will be protected for wildlife needs and will not be sold for fuelwood.

Within the areas classified as commercial forestland, timber harvesting will be conducted in a manner that will protect and benefit watershed, wildlife, and wetland/riparian habitat values.

Slash resulting from timber harvesting will be lopped and scattered, roller chopped, or burned to provide watershed protection, nutrient recycling, and wildlife habitat improvement.

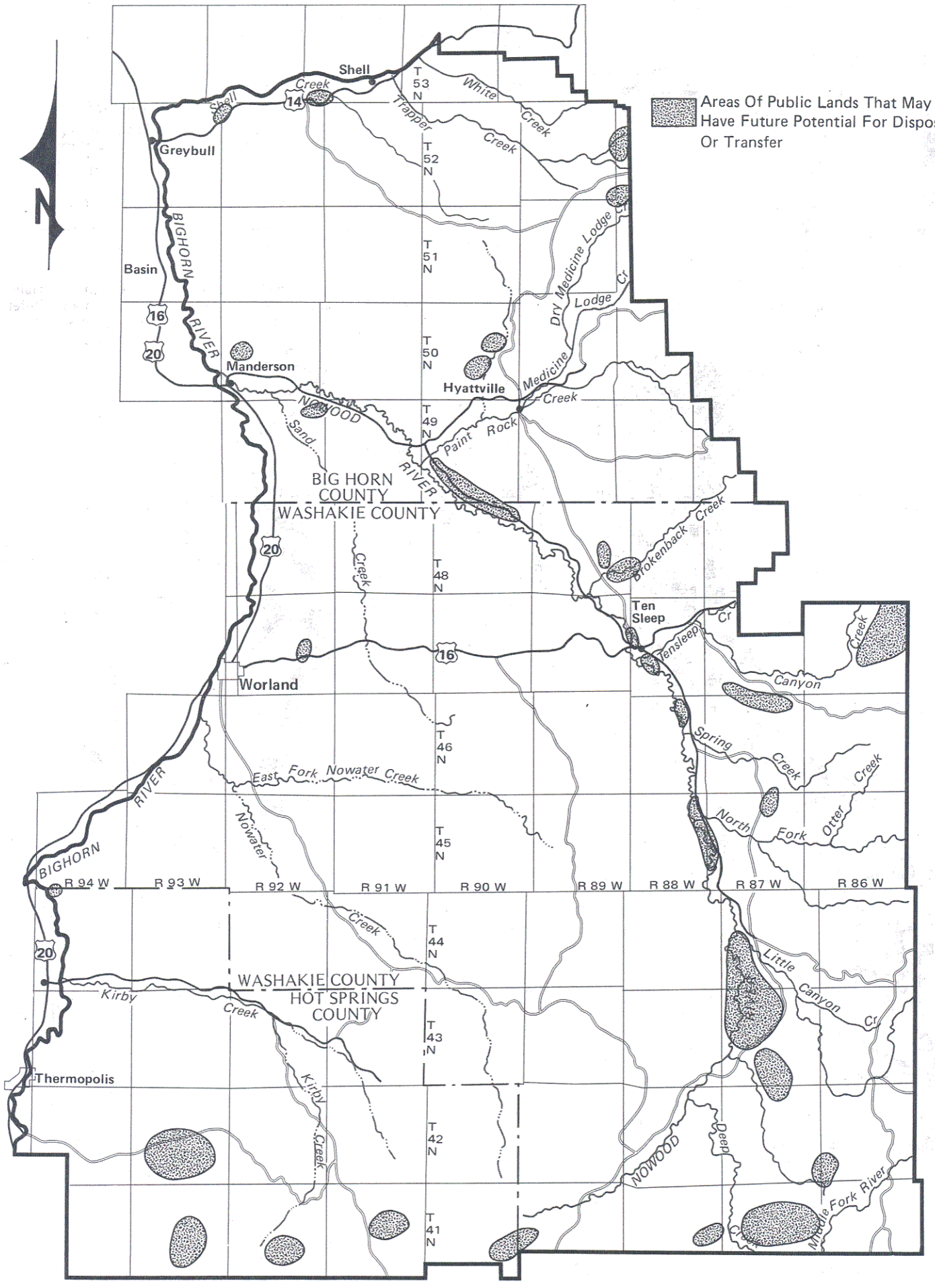
Silvicultural practices will be allowed in elk calving areas if such practices will benefit the calving areas.

A precommercial thinning backlog on 450 acres of commercial forestland will be eliminated and future backlogs will be avoided by regular thinning of all overstocked stands when they reach the 20- to 30-year age class.

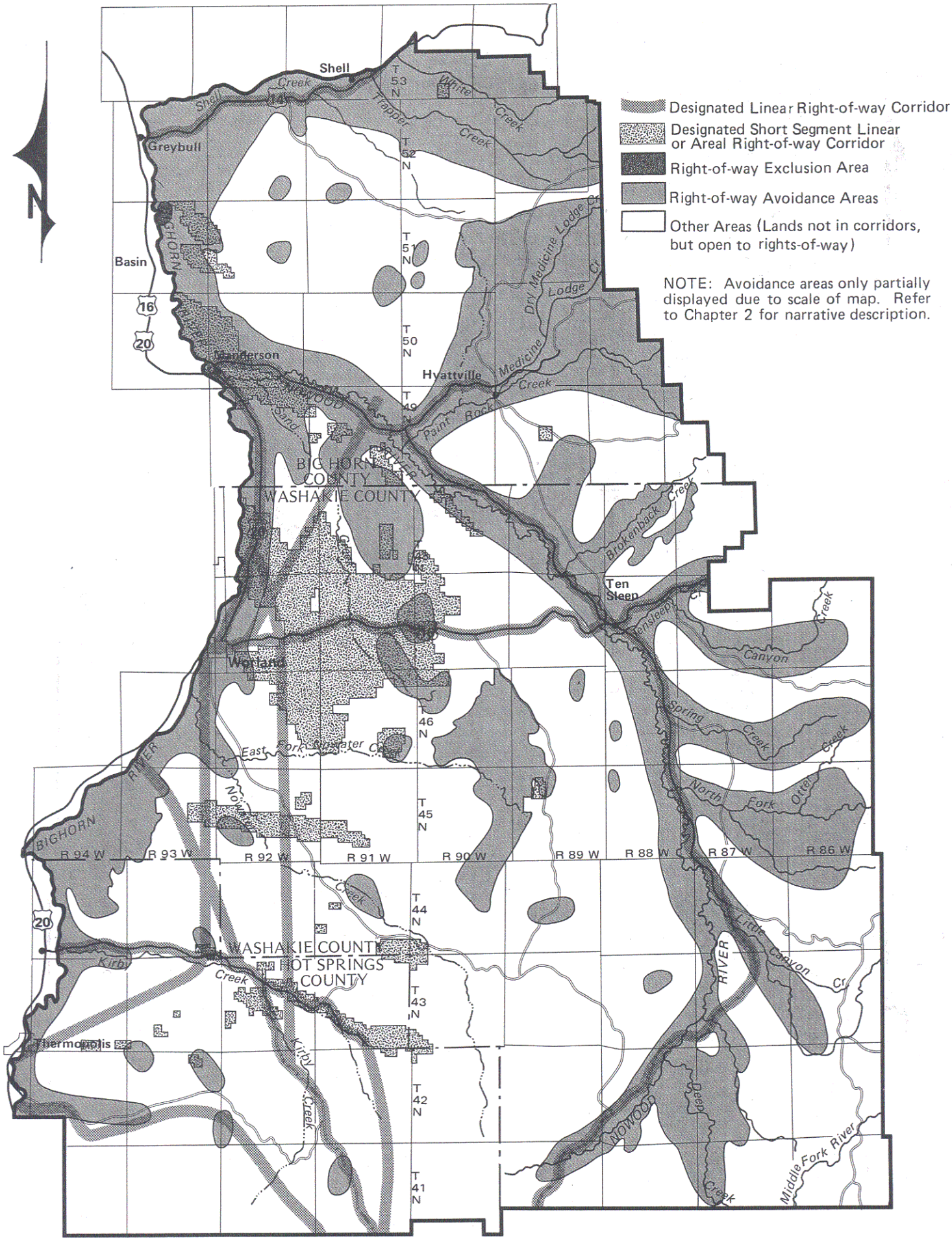
A reforestation backlog on 200 acres of unstocked forestland will be eliminated. Additionally, all timber stands that are harvested and are not reestablished by natural regeneration will be planted with conifer species.

The West Slope Forest Management Plan will be developed based on a comprehensive review of all forest related resource needs.

The harvest of forest products and other vegetative treatments will be considered on all forest



Map 5
LAND AND REALTY MANAGEMENT
Potential Future Land Transfer
Washakie Resource Management Plan



Map 6
LANDS AND REALTY MANAGEMENT
Corridor Designation
Washakie Resource Management Plan

and woodland areas to accomplish wildlife, watershed, and forest management objectives. Harvesting and other practices will be designed to accomplish one or more of the following:

—Improve wildlife cover and other habitat conditions
—Maintain existing levels of thermal cover for wildlife
—Increase forage production for wildlife or livestock
—Compensate for loss of wildlife habitat because of natural tree mortality
—Harvest stands with heavy tree mortality and fuels accumulation
—Increase aspen cover
—Increase timber stand diversity and age structure
—Reduce fire danger
—Increase recreational opportunities in healthy, vigorous timber stands
—Provide fuelwood cutting opportunities
—Improve health and vigor of vegetation in stream buffer stands
—Prevent the transport of sediments and harvesting debris to ephemeral and perennial streams
—Allow the pre-harvested watershed condition to be reestablished through reforestation.

Actual harvest levels will be based on treatments needed to meet management objectives. Allowable cut figures, when calculated, will reflect the level of harvest needed to develop and maintain the desired structure of the forestland base. Forest products including fuelwood and posts and poles, will be harvested.

Commercial forest vegetative treatments will consist of clearcuts and shelterwood cuts in lodgepole pine, and selective or shelterwood cuts in the various other coniferous types. The annual harvest will come from lodgepole pine and from other coniferous types.

Woodland treatments will be done primarily in aspen and juniper stands. The objective of aspen stand treatments will be to revitalize decadent stands, increase stand density, and increase canopy cover. Juniper stands will be managed to provide improved wildlife habitat and forage conditions.

Various management techniques will be applied to attain the management goals of timber production and enhancement of other resource values if traditional forms of logging are not possible or if stands are not purchased when offered for sale. These may include:

—Helicopter logging
—Burning instead of logging
—Disease treatment by spraying
—Spraying of grasses and shrubs to eliminate competition with tree species.

Wild Horse Management

Resource Management Objective

To reduce damage to range developments, soil and vegetation, and to reduce competition for livestock and wildlife forage.

Management Actions

All the wild horses in the Zimmerman Springs Wild Horse Herd Area will be removed from the area and will be made available for adoption through the BLM's "Adopt-a-Horse Program" or be relocated to another designated wild horse herd management area.

Range and Livestock Grazing Management

This section of the plan is also the Range Program Summary (RPS) for the Washakie Resource Area. The principal purposes of the RPS are to: (1) announce to the public the results of the livestock grazing portion of the resource management plan/environmental impact statement; (2) inform the public of the BLM's rangeland resource management objectives for the allotments in the Washakie Resource Area; and (3) document publicly the actions intended to achieve those objectives.

Resource Management Objective

To provide forage for livestock grazing, to reduce conflicts between livestock grazing and other resource uses, and to improve ecological range condition.

Management Actions

General Management Actions

Management actions will be implemented to accomplish the long-term objectives of good or better range condition on an estimated 960,000 acres of public land. Among the actions that will be used are those listed in appendix B.

Total authorized livestock grazing use will not exceed 143,000 AUMs annually.

Seasons of use, number, kind and class of livestock will be established on those allotments that currently have no season of use or number of livestock designated. These will be established as the current term permit/leases expire or when allotment management plans or management agreements are implemented.

Authorized grazing use will be permanently or temporarily adjusted for the 300 to 500 acres taken out of production each year by mineral patents, other disposals, and other permanent or temporary uses.

Where appropriate, the BLM will assist the Wyoming Game and Fish Department (WGFD) in accomplishing the Department's management objectives for wildlife HMUs and other important habitats. Actions that may be employed include habitat improvement projects, reducing or eliminating livestock grazing, or other practices that will help meet management objectives and enhance the quality of these habitats.

Approximately 2,000 animal unit months (AUMs) of forage traditionally used when permittees trail their livestock from one pasture or allotment to another, but that are not allocated to specific allotments, will be allocated for trailing in the Worland-Ten Sleep, Nowater, Rome Hill, and Cottonwood stock driveways.

Access on the South Trapper Rim, South Brokenback, and North Brokenback roads and a crossing of the Nowood River between Ten Sleep and Box Elder Ranch will be acquired, to facilitate range management and other uses of the public lands.

Allotment Management Plans (AMPs) and Management Agreements

The eighteen existing AMPs will be revised if necessary, and implemented. New Allotment Management Plans or management agreements will also be developed and implemented. These activities will take place at an average rate of three allotments per year. The priority for implementing and revising these plans is listed in table 1.

TABLE 1

PRIORITY LIST FOR CATEGORY "I1" ALLOTMENTS

Priority	Allotment Number	Allotment Name
01	0005	Southside Group
02	0143	Medicine Lodge
03	0148	Renner Individual
04	0003	Forks
05	0066	Meyers Spring
06	0217	East Alkali
07	0218	West Alkali
08	0064	Spanish Point
09	0158	Seaman
10	0142	Individual
11	0058	Mathews Ridge
12	1535	South Shell Group
13	2506	Dye
14	0048	Neiber
15	0175	Upper Brokenback
16	0177	Red Springs Rock Butte
17	0178	Mountain
18	0125	East Side Summer
19	0124	West Side Summer
20	0123	Buffalo Sand Point
21	0004	Gapen Hyatt
22	0095	Forks
23	0094	Red Hills
24	0092	Paint Rock Canyon

TABLE 1 (Continued)

PRIORITY LIST FOR CATEGORY "I1" ALLOTMENTS

Priority	Allotment Number	Allotment Name
25	1507	Mountain
26	0002	Weber Lower
27	0031	Brokenback
28	0188	Small Pasture
29	0189	Jolly Pasture
30	0190	Turner Pasture
31	0195	Lower Black Mountain
32	2512	Janes
33	0127	Otter Creek Pastures
34	0130	Lower VS
35	0131	High Camp
36	0012	Big Trails Group
37	0084	Trapper Creek
38	0069	Mahogany Butte
39	0118	Big Bend Common
40	0050	Mud Creek
41	0182	Buttes
42	0501	Kirby Creek
43	0203	Tobes Pastures
44	0206	Bear Creek
45	0562	Gardner Badlands
46	0589	Kirby Creek
47	1511	Lake Ridge
48	1513	Black Mountain
49	1526	Sabin
50	1536	White Creek
51	2005	
52	2007	
53	2503	
54	2507	
55	2509	Peak Pasture
56	2514	V-H Draw
57	2525	
58	2536	Basin
59	2538	
60	2552	
61	2554	
62	2556	
63	2558	
64	2559	

Range Projects

Any new range projects proposed will be subjected to economic and environmental analyses. Adequate information to determine the economic benefits and costs and the environmental consequences will be collected before projects are approved for construction. All projects will be designed to meet allotment management objectives and to be multiple-use projects or at least to minimize any impacts to other resource values. Private contributions of labor, materials, and/or funds will be encouraged on all projects.

Approximately 1,400 existing range development projects will be maintained in accordance with the current agreements or permits.

The following are the types and estimates of new projects that will be implemented, with funding priority given to "I" category allotments:

—200 miles of fence
—70 spring developments
—60 reservoirs
—100 miles of water pipeline
—10 water catchments
—8,100 acres of sagebrush spraying
—26,000 acres of prescribed fire treatment.

Subject to prior approval, including an environmental assessment and under the supervision of the BLM, the construction of livestock management facilities, the implementation of grazing management systems, and the control of sagebrush and juniper stands through chemical or mechanical means or through the use of prescribed fire will be allowed on "M" category allotments, using private funds. Facilities and practices must be consistent with the objectives of maintaining or improving current satisfactory range condition and forage production.

The construction of livestock management facilities using private funds, and the development of grazing systems will be allowed on "C" category allotments, subject to prior approval, including an environmental assessment and supervision by the BLM. Any projects permitted must be consistent with the management objectives of the allotment and with the RMP.

Monitoring and Adjustments to Current Use

Livestock grazing will continue as currently authorized on all 307 allotments administered by the Washakie Resource Area, unless adequate data are available to support adjustments. (Refer to table 2 and appendix C.) Season of use, distribution, and kind, class, and number of livestock will be adjusted on a case-by-case basis or as AMPs/management agreements are developed on the allotments. These adjustments will be implemented to improve vegetative and wildlife resources and to protect areas unsuitable for livestock grazing. Any adjustments in livestock grazing use will be made as a result of monitoring and in consultation with grazing permittees and other affected interests.

All "I" and "M" category allotments and allotment management plans will be monitored. Monitoring of "C" category allotments will also occur but will be low priority. Monitoring will be continued following any adjustments in grazing use to assure allotment management objectives are being met. Monitoring will be conducted in accordance with the Washakie Resource Area Monitoring Plan which will be completed following the issuance of the Washakie Resource Area RPS.

TABLE 2

ALLOTMENT CATEGORIZATION SUMMARY

Allotment Category	Number of Allotments	Percentage of Total	Public Land Acreage	Percentage of Total	Grazing Preference (AUMs)	Percentage of Total
M	60	19	58,079	5	10,277	7
I	204	67	902,082	82	120,323	84
C	43	14	136,682	13	12,077	9
Totals	**307**	**100**	**1,096,843**	**100**	**142,677**	**100**

Adjustments in grazing use on "I" category allotments will be made following monitoring of the allotments or by agreement between the BLM and the permittee(s). The monitoring studies will include actual use, utilization, and climate to estimate the level of needed adjustments. All affected parties will be consulted to determine the intensity of monitoring needed, the location of monitoring studies, and to develop specific allotment objectives that management must meet. Adjustments in grazing use may include one or more of the following:

—Changes in season of use
—Changes in class, kind, and numbers of livestock
—Changes in grazing management
—Changes in current use levels
—Changes in active grazing preference.

Additional projects needed to implement the changes, if any, will be identified. Other monitoring studies (condition and trend studies) needed to determine long-term adjustment and, if necessary, to measure long-term changes in range condition, will be identified and implemented.

Special Management Considerations

Livestock grazing will be managed in wetland/riparian areas to allow steady, long-term restoration and improvement of habitat conditions. Fences will be built around wetland/riparian areas, as appropriate, to improve management and to reduce problems on perennial and ephemeral streams, reservoirs, and springs. New grazing systems will be implemented to restore and enhance wetlands.

Aspen stands throughout the planning area will be protected from livestock grazing. Priority areas for protection are the Brokenback, Onion Gulch, and Upper Alkali Road areas. Methods of protection include use of rest/rotation grazing systems, establishment of salt stations away from aspen stands, and fencing.

If grazing management techniques described or referenced above are not adequate to meet the objectives of resource management, livestock grazing will be reduced or eliminated on some allotments or portions of allotments, especially around sources of springs, reservoirs, other riparian areas including tracts identified in the Bighorn River Habitat Management Plan (HMP), aspen stand regeneration areas, and crucial big game winter ranges.

Cultural Resource Management

Resource Management Objective

To protect and preserve representative samples of cultural resources present in the planning area, to manage cultural resources to maintain and enhance scientific and socio-cultural values, and to ensure that the BLM's actions avoid inadvertent damage to cultural resources.

Management Actions

The Paint Rock Canyon area will be nominated for inclusion in the National Register of Historic Places.

Protective measures will be implemented for all important cultural sites, either known or identified in the future.

Important paleontological sites will be protected through the use of surface and subsurface protection stipulations and discretionary management authority.

Off-Road Vehicle Management

Resource Management Objective

To control the use of off-road vehicles as a means of reducing damage to fragile soils, wetlands, cultural values, and wildlife habitat.

Management Actions

Approximately 6,700 acres will be closed to vehicular travel to protect karst areas and threatened and endangered species habitat (map 7).

Approximately 1,227,300 acres will have vehicle use limitations imposed (be designated as "limited"), to protect crucial habitat, fragile soils, wetlands, etc.

No areas will be designated as open without limitation to vehicular travel, (i.e., unrestricted use of vehicles will not be allowed).

Recreation Management

Resource Management Objective

To enhance and expand opportunities for recreation while intensively managing areas with high recreation values.

Management Actions

The Castle Gardens and Middle Fork campgrounds and the Lone Tree Trailhead will be maintained.

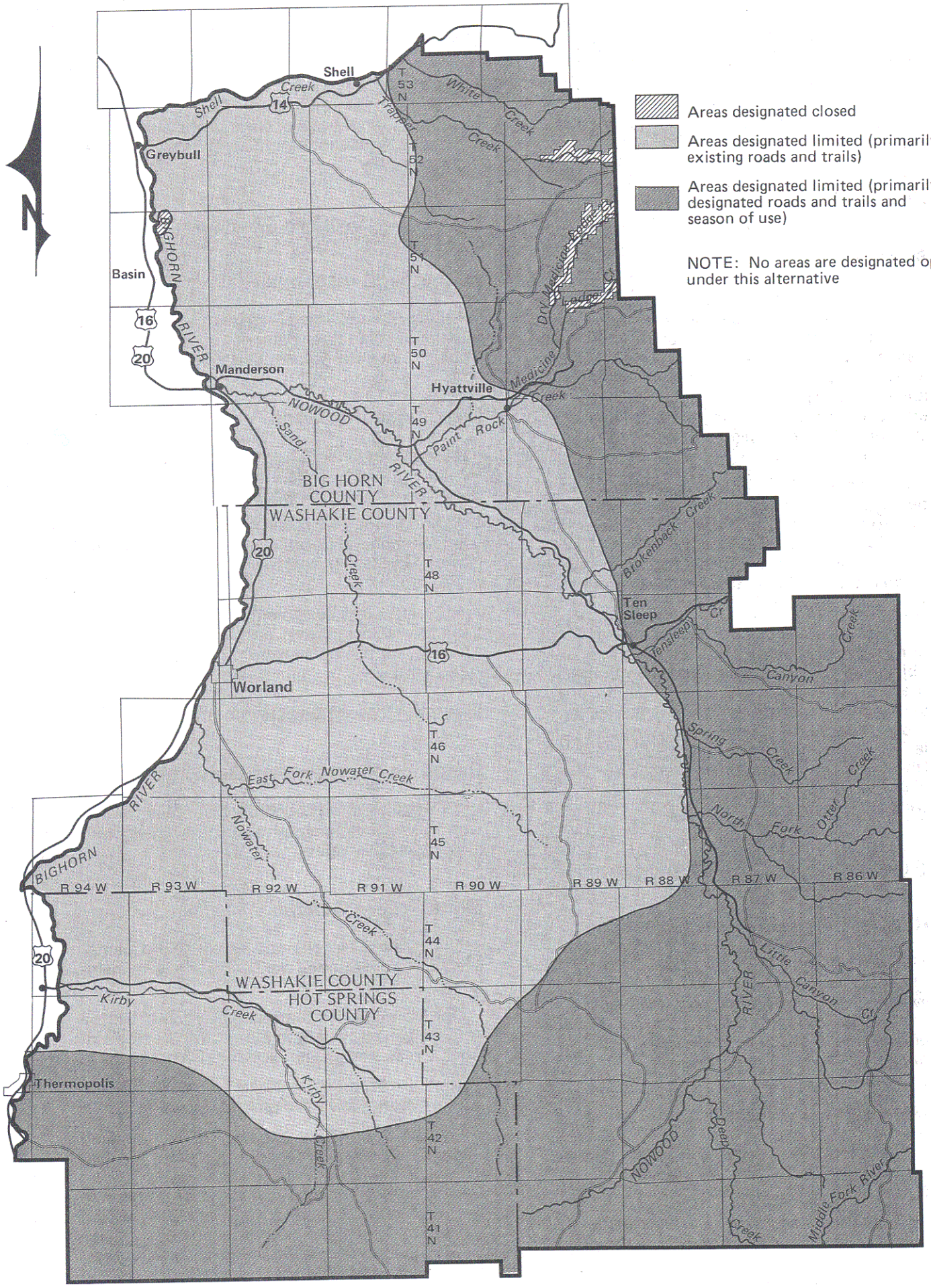
Opportunities for recreational access will be emphasized, especially in the Laddie Creek, Paint Rock Creek and Upper Nowood River areas.

Special recreation permits will be issued to authorize organized recreational use.

The recreational use of caves will be managed under a cave management plan. Goals of the plan will include:

—Promoting the significance and importance of cave resources through interpretive and educative programs and techniques.

—Protecting and maintaining cave resources, including wildlife species and habitat in and



Map 7

OFF-ROAD VEHICLE MANAGEMENT

Washakie Resource Management Plan

around caves, by interpreting, restricting, and/or prohibiting nonconforming uses.
—Enhancing user experiences and opportunities by managing use at levels compatible with resource carrying capacity and protection.
—Ensuring visitor protection and safety.

Recreational use will be managed to maintain or improve wetland habitat conditions along intensively used streams and reservoirs.

The existing BLM authorized outfitter/guide activities will be evaluated for needs to establish future commercial use limitations and related policies.

Restrictions on recreational use will include applicable ORV restrictions, the use of the caves, and management prescriptions written for special recreation management areas.
—Protecting cave resources and providing for user safety will be accomplished with controls such as limiting party size, timing of use to avoid crowding, and closing caves to use during periods of high water runoff.
—Prescriptions written for special recreation management areas will include directing recreational use, protecting important resources, and reducing conflicts with other uses.

About 241,000 acres on portions of the west slope of the Bighorn Mountains will be designated as a Special Recreation Management Area (SRMA) (map 8). About 59,000 acres along the Bighorn River from the Wedding of the Waters downstream to Shell Creek also will be designated as an SRMA. The remainder of the resource area (about 934,000 acres) will be designated as an Extensive Recreation Management Area (ERMA).

The acquisition of legal and/or physical access will be considered for hunting, fishing, boating, and camping. Areas to be considered for acquisition include:

a. Bighorn River: Tract 4817—Sulphur Plant, Winchester Diversion, South Flat Bridge, Worland Bridge, Rairden Bridge, Manderson Bridge, Basin Bridge, the Greybull Bridge.

b. West Slope Canyons: Otter Creek, Deep Creek, Trapper Creek, White Creek and the Horse Mountain area, North Brokenback Creek, Canyon Creek, and Little Canyon Creek.

c. Public land tracts along the Nowood River.

d. Intermingled public and private lands in the Upper Nowood River area.

The Billy Miles HMU agreement among BLM, the WGFD, and local landowners will be updated and renewed.

At certain sites recreational facilities will be considered for development as follows:
—Upgrade the access road and develop three additional camp/picnic spaces at the Castle Gardens campsite.
—Develop facilities necessary for site protection and visitor management at the Middle Fork camping area and the Cherry Creek stock driveway crossing of Deep Creek. Facilities may include fire rings, sanitary facilities, fencing, parking areas, road improvements and vehicle barriers, and trail and bridge repair, depending on the needs of the specific site.
—Develop facilities necessary for site protection and visitor management at the Trailheads on Otter Creek, Paint Rock Creek, Trapper Creek, and Medicine Lodge Creek.

Cave use permits will be issued to qualified applicants.

Access to caves will be obtained only if consistent with cave and other resource management objectives.

Additional directional and interpretive signs will be installed to facilitate use in the following areas:
—Major travel routes
—New access routes or points
—Upper Nowood River area
—Laddie Creek area
—Billy Miles HMU
—Renner HMU
—Medicine Lodge HMU
—Upper Brokenback area
—Cherry Creek crossing
—Otter Creek
—Middle Fork of Powder River, and
—Castle Gardens.

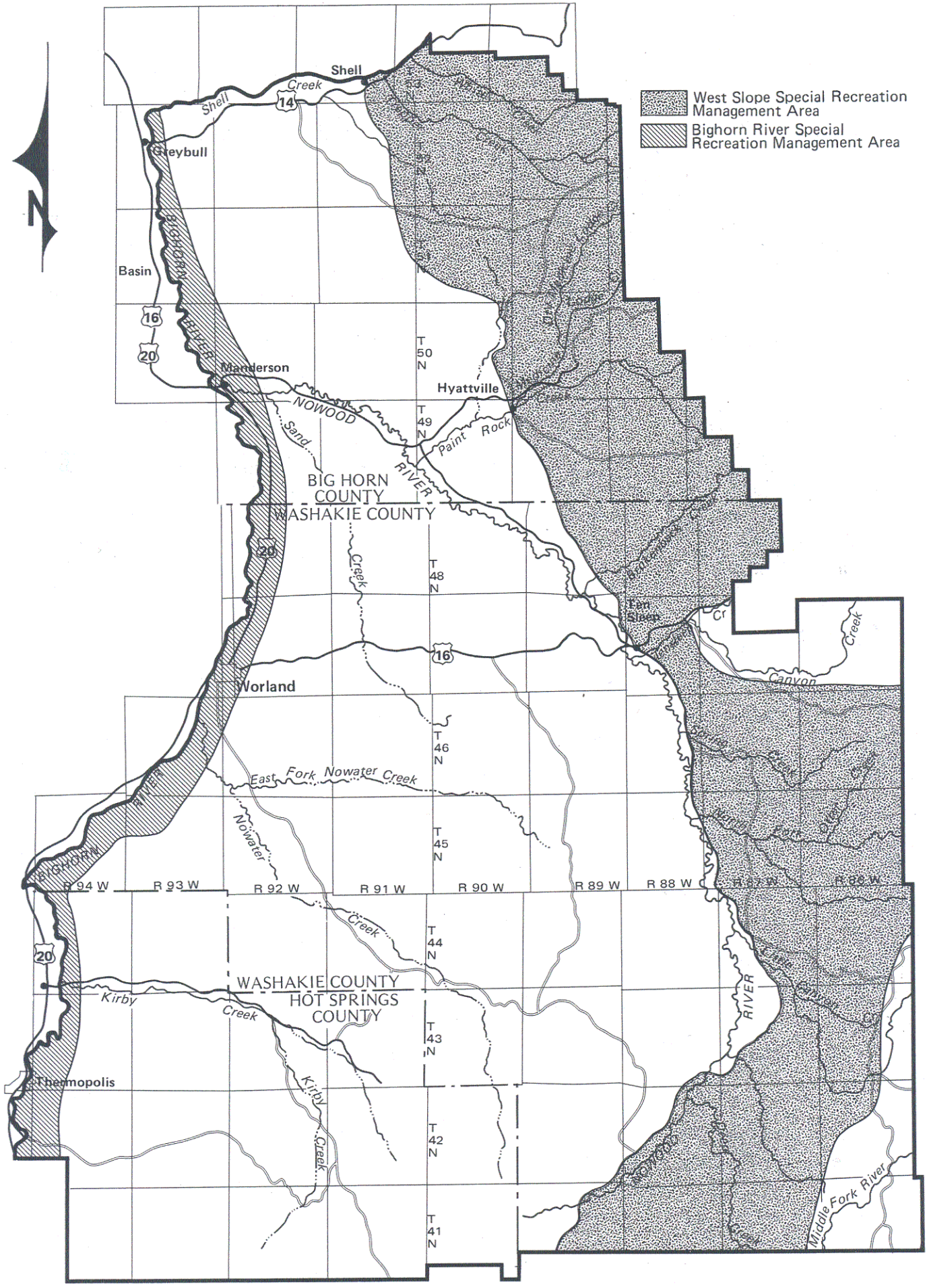
Visual Resource Management

Resource Management Objective

To minimize adverse visual impacts to the land while maintaining the effectiveness of land use allocations.

Management Actions

Visual resource management (VRM) objectives will be considered in the evaluation of all propos-



Map 8

RECREATION MANAGEMENT

Special Recreation Management Areas

Washakie Resource Management Plan

als for activities on the public lands in the planning area. Impacts to visual resources will be mitigated through applying the guidance for mitigating surface-disturbing activities in the Wyoming BLM Standard Oil and Gas Lease Stipulations or by mitigations developed through the environmental analysis process.

Fish and Wildlife Habitat Management

Resource Management Objective

To protect and enhance important fish and wildlife habitats.

Management Actions

The West Slope HMP will be expanded to include those portions of the Washakie Resource Area not presently covered by the plan.

The West Slope HMP and the Bighorn River HMP will be fully implemented.

Wetlands will be managed to maintain and improve habitat through the implementation of changes in livestock grazing systems and specific practices contained in the West Slope and Bighorn River HMPs. Specific practices may include such things as plantings, fencing, using buffer zones, and installing structures to control water levels and prevent siltation.

Wildlife habitat management will be accomplished through protection of habitat from destruction or negative impacts, and by habitat development or manipulation. Specific numbers, types, and locations of projects and conditions of their development will be prescribed in habitat management plans or other activity plans to solve problems and meet management objectives.

The protection of habitat will be accomplished through such methods as:

—Improving range condition
—Withdrawing public land tracts from mineral or other entry
—Increasing animal security by controlling access
—Restricting oil and gas exploration and development in important habitat areas
—Designating seasons of use or reducing disturbances in important wildlife habitat
—Providing buffer zones, and
—Eliminating competing uses on important areas, such as livestock grazing on parturition areas during calving seasons.

Techniques that will be used to develop or manipulate habitat include the following:

—Land acquisition
—Easement acquisition
—Farming
—Prescribed burning
—Protection or development of water sources
—Fence construction
—Fence maintenance
—Island development
—Timber management
—Access management
—Withdrawals from mineral entry, agricultural entry and disposal
—Use of surface protection mitigations
—Modification of existing projects, such as fence modification
—Construction of artificial structures, and
—Management of other resource activities to conserve forage and protect habitat.

Allocations of forage to wildlife will be made on a case-by-case basis.

Certain areas will be managed to allow wildlife species to be reintroduced:

—Public lands in West Slope Canyons will be managed to facilitate the reintroduction of peregrine falcon.
—Public lands north of Ten Sleep and east of the Nowood River will be managed to facilitate the reintroduction of pronghorn antelope.
—Public lands covered in the Bighorn River HMP between Thermopolis and Kirby will be managed to facilitate the reintroduction of trumpeter swans.
—All Bighorn River HMP tracts will be managed to facilitate the reintroduction of ospreys.
—Public lands on the west slope of the Bighorn Mountains will be managed to facilitate the reintroduction of bighorn sheep.

With the exception of the Spanish Point Karst ACEC, chemical control of pests will be allowed planning areawide. This will be subject to restrictions to protect food chains and important wildlife habitat and wetlands identified in Records of Decision on the Northwest Area Noxious Weed Control Program, the Rangeland Grasshopper Cooperative Management Program, findings of the Department of the Interior's Pesticide Program Review, and subsequent EISs and EAs.

Access (including 4-wheel drive, snowmobile, horseback, and pedestrian access) will be limited in areas of crucial habitats, sensitive species habitats and wetland/riparian habitat. The type of limitation will depend on the kind of resource value being protected.

Threatened and Endangered Wildlife Species

Resource Management Objective

To protect the habitats of threatened and endangered fish and wildlife species to allow the reintroduction or maintenance of their populations.

Management Actions

Public lands that provide habitat or potential habitat for threatened and endangered species (three species—bald eagle, peregrine falcon and black-footed ferret) and sensitive species identified by the state of Wyoming (66 individual species and one group of species—bats) will be protected and managed to benefit those species.

Whenever activities are proposed in endangered, threatened, or sensitive species habitat, the BLM will complete either a clearance (for minor actions and projects) or a biological assessment (for major actions or projects requiring an EIS) to determine if approval for the action or project should be granted.

Soil and Water Management

Resource Management Objective

To stabilize soils, increase vegetative production and maintain water quality.

Management Actions

With the exception of the Spanish Point Karst ACEC, chemical control of pests will be allowed planning areawide. This will be subject to restrictions to reduce the possibilities of water pollution identified in Records of Decision on the Northwest Area Noxious Weed Control Program, the Rangeland Grasshopper Cooperative Management Program, and subsequent EISs and EAs.

Streams in west slope canyons will be managed to maintain their natural flow patterns. The guidance for mitigating surface-disturbing activities in the Wyoming BLM Standard Oil and Gas Lease Stipulations will be used as the basis for determining restrictions to be applied to activities to prevent watershed deterioration and sedimentation of these stream systems.

All watershed projects will be maintained on a priority basis. Projects with the highest priority for maintenance, from a watershed standpoint, are the following:

—Seventeen reservoirs or detention dams will be repaired and about 50 acres of habitat associated with their sediment pools will be fenced.

—Spreader dikes will be repaired to maintain 900 acres of spreader capacity in the Wild Horse Draw drainage.

Oil and gas exploration wells and geophysical drill holes that produce water may be acquired by BLM, developed, and managed for livestock, wildlife, or recreation purposes when they meet the criteria listed in appendix H of the proposed Washakie RMP/FEIS.

The BLM will file with the Wyoming State Engineer's Office to obtain valid water rights on all water-related projects. The BLM will also apply to the State Engineer's Office for temporary water use permits.

Management actions will emphasize the reduction of soil erosion and sediment yields in sensitive watersheds (map 9). These watersheds are (in descending priority):

—Kirby Creek
—Nowater Creek, and
—East Fork Nowater Creek.

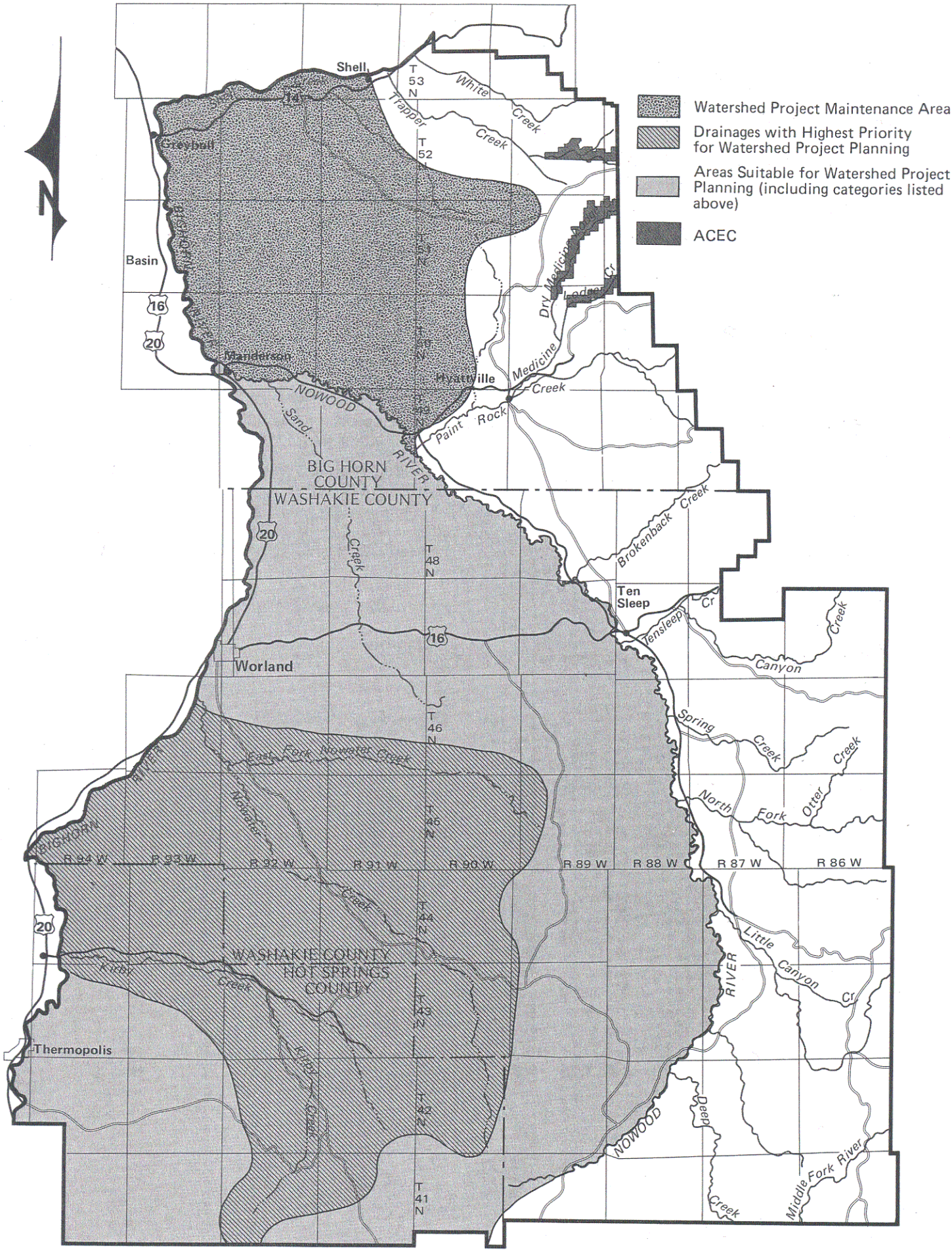
Management actions will include the use of Best Management Practices (BMPs) to increase vegetative cover, primarily through changes in livestock management, and to stabilize watersheds with water flow and sediment control structures.

On sites that fail to respond to grazing management, practices such as contour furrowing, surface ripping, seeding projects, or combinations of such practices will be applied to improve vegetative cover and condition, if those sites have the potential to respond to the treatments. For example:

—Contour furrowing may be applied on saline upland and saline lowland range sites with slopes of less than 6 percent where soil erosion is evident, particularly near gullies and established drainages.

—Seeding may be applied on loamy, shallow loamy, and sandy range sites with inadequate vegetative cover and lack of adjacent seed sources. Seedings may include both pioneer and native species.

Future water discharges from mining activities, waste water treatment facilities, etc., into drainages and surface waters will be regulated by the National Pollutant Discharge Elimination System (NPDES) permit process. Existing and future discharges of produced water from oil and gas operations on federal leases will be regulated by the



Map 9
WATERSHED MANAGEMENT
Washakie Resource Management Plan

NPDES and the Notice to Lessee (NTL) 2B regulations. The following constraints will be applied in all situations:

—NTL 2B produced water disposals will not be allowed in Trapper Creek from the FS boundary downstream to the west line of section 21, T. 52 N., R. 89 W.

—NTL 2B produced water disposals will not be allowed in Dry Medicine or Medicine Lodge creeks from the FS boundary downstream to the confluence of the two creeks.

—NTL 2B produced water disposals that would degrade water quality in streams and reservoirs with sport fishery potential in the West Slope HMP area will not be allowed.

Wildfire suppression restrictions will be applied to areas above sinking stream segments and caves as follows:

—Equipment, such as trucks and bulldozers, will not be allowed to operate within 200 yards of Dry Medicine Lodge, Medicine Lodge, or Trapper creeks and other tributaries exhibiting karst characteristics.

—Air-dropped fire retardants will not be allowed within 200 yards of Dry Medicine Lodge, Medicine Lodge, and Trapper creeks.

Fire Management

Resource Management Objective

To protect resource values, property and human life from loss due to wildfire, and to use prescribed fire to meet other resource management objectives.

Management Actions

Reclamation and soil stabilization practices will be applied to burned areas. Additionally, livestock grazing will be controlled on burned areas, through the use of such methods as fencing or resting from livestock grazing.

Prescribed fire will be used to achieve management objectives, especially those identified in detailed activity plans such as AMPs and HMPs. Prescribed burning will be conducted in a manner that will avoid violation of the Wyoming Ambient Air Quality Standards.

Full suppression of wildfires, with appropriate restrictions, will occur in wetland/riparian areas.

Full suppression of wildfires will occur on about 703,700 acres (map 10).

Limited suppression of wildfires will occur on about 530,300 acres.

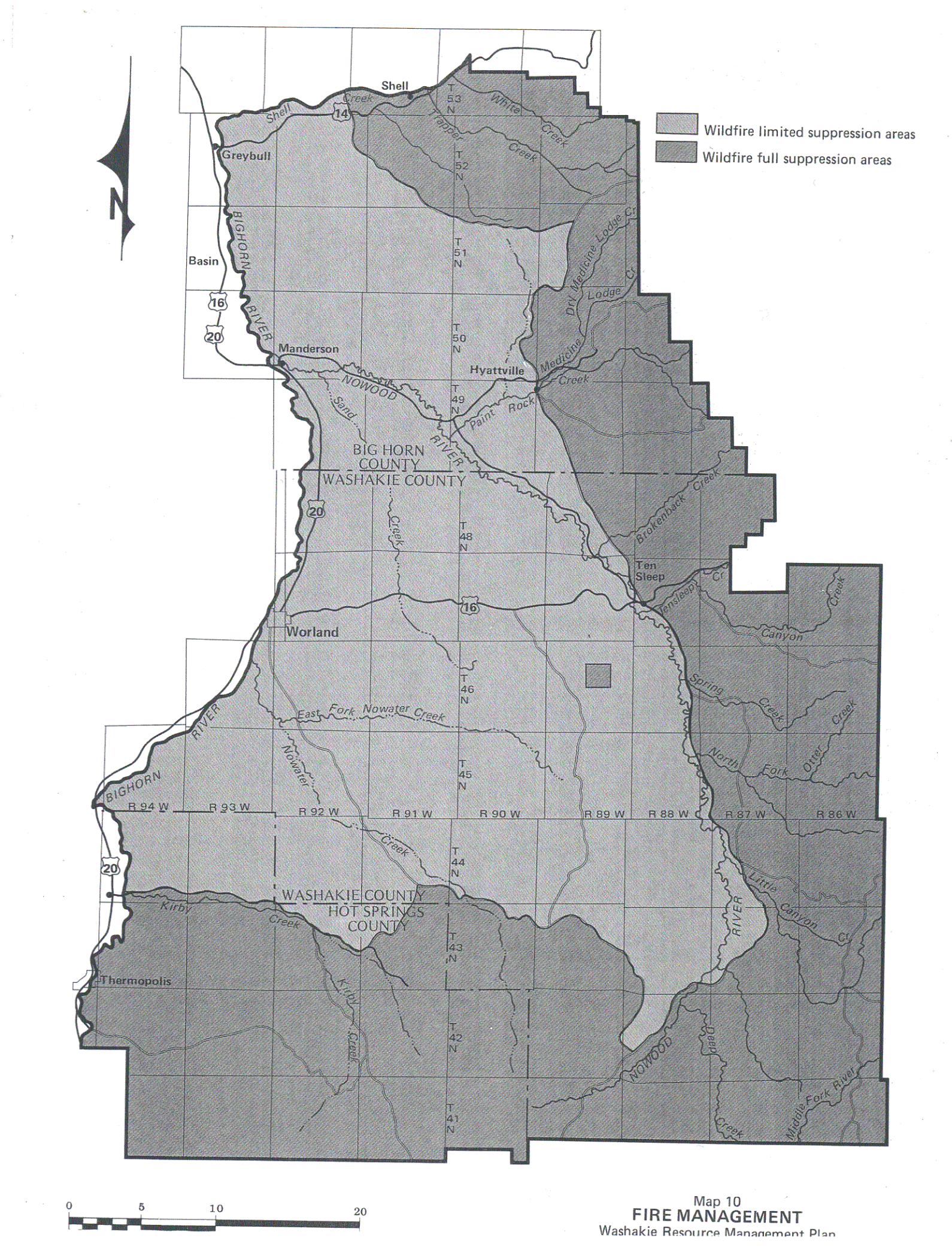
Hazardous Materials Management

Resource Management Objective

To protect human health, welfare, and the environment.

Management Action

Regulated hazardous wastes that are discharged on public lands will be secured, disposed of, or otherwise remedied in accordance with the Federal Environmental Protection Agency, the BLM, and the state of Wyoming regulations.



Map 10
FIRE MANAGEMENT
Washakie Resource Management Plan

Appendices

APPENDIX A

OIL AND GAS OPERATIONS

INTRODUCTION

This appendix describes, in general terms, the processes involved in oil and gas operations (exploration, development, and production) in the Washakie planning area. This description is intended to provide information that was not previously published in the draft Washakie RMP/EIS or the Washakie RMP/Final EIS. Much of this information is included in the management situation analysis and related documents which were used during the land use planning process for the planning area, but which have not received widespread review by the public.

GEOPHYSICAL EXPLORATION

Oil and gas can be discovered by either direct or indirect exploration methods. The mapping of rock outcrops, seeps, and borehole data are examples of direct methods. Indirect methods include seismic, gravity, and magnetic surveys; these methods are described in this appendix. (Also see figure 1.)

Gravity Surveys

Gravitational prospecting detects micro-variations in gravitational attraction caused by the differences in the density of various types of rock. Data derived from gravity surveys are used to generate anomaly maps from which faults and general structural trends can be interpreted. Gravity surveys are generally not considered definitive due to the many data corrections required (e.g., terrain, elevation, latitude, etc.) and the poor resolution of complex subsurface structures. The instrument used for gravity surveys is a small portable device called a gravimeter. Several types of gravimeters have been developed and virtually all can be easily carried by an individual. Generally, measurements are taken at many points along a linear transect and the gravimeter is transported either by backpack, helicopter, or off-road vehicle (ORV). The only surface disturbance associated with gravity prospecting is that caused by the ORV, if used.

Geomagnetic Surveys

Magnetic prospecting is most commonly used for locating metallic ore bodies, but is used to a limited extent in oil and gas exploration. Magnetic surveyors use an instrument called a magnetometer to detect small magnetic anomalies caused by mineral and lithologic variations in the earth's crust. Magnetic surveys can detect large trends or lineaments in basement rocks and the approximate depth to those basement rocks, but in general magnetic surveys provide little specific data to aid in petroleum exploration. Again many data corrections are required to obtain reliable information and maps generated from magnetic data lack resolution and are considered preliminary. Magnetometers vary greatly in size and complexity and in general most magnetic surveys are

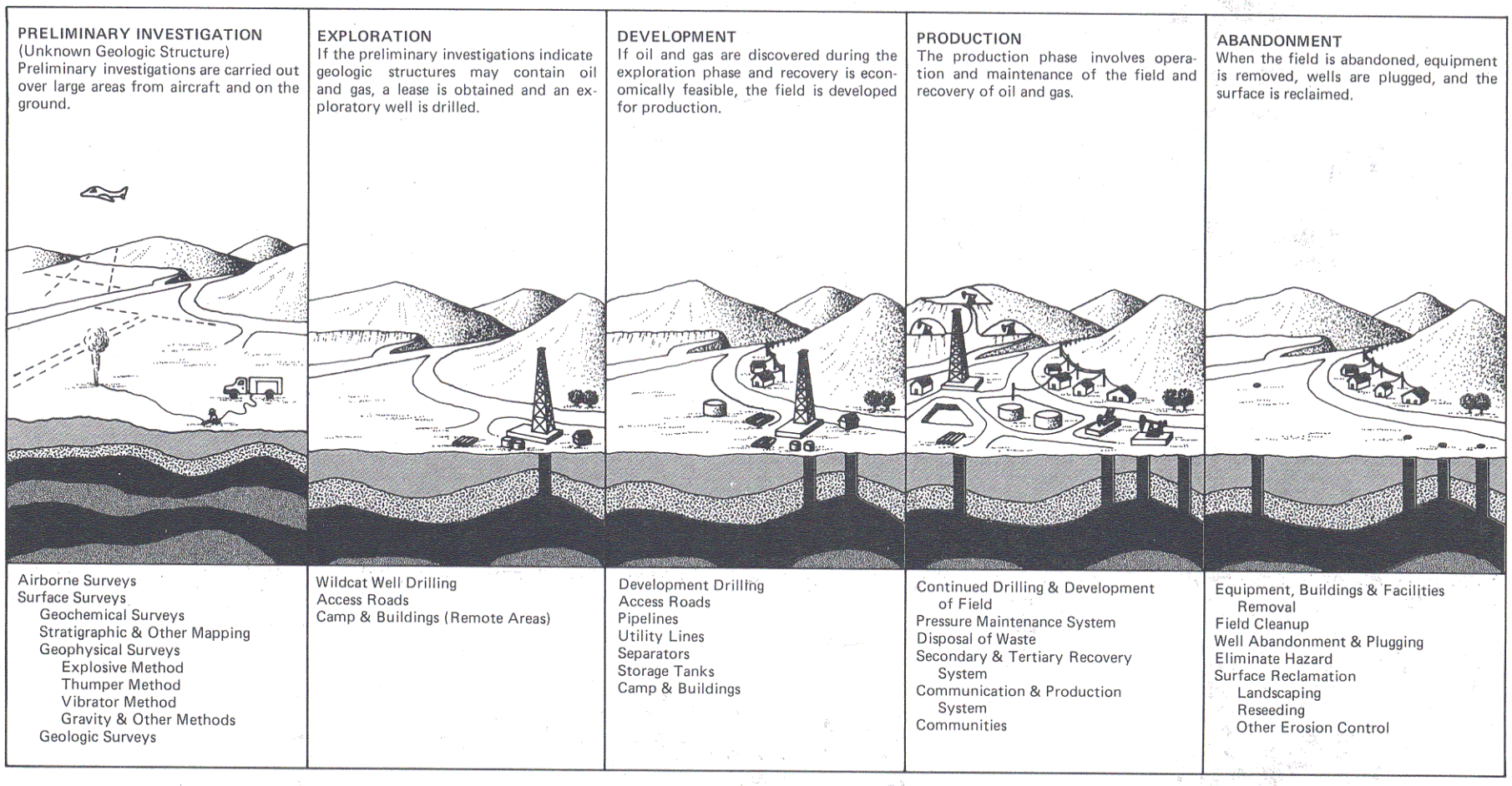


Figure 1
SEQUENCE OF OPERATIONS IN AN OIL AND GAS FIELD

conducted from the air by suspending a magnetometer under an airplane. Magnetic surveys conducted on the ground are nearly identical to gravity surveys and surface disturbance is minimal to nonexistent.

Seismic Reflection Surveys

Seismic prospecting is the best and most popular indirect method currently utilized for locating subsurface structures which may contain oil and(or) gases. Seismic energy (shock waves) is induced into the earth using one of several methods. As these waves travel downward and outward they encounter various strata, each having a different seismic velocity. As the wave energy encounters the velocity interface between stratigraphic layers where the lower stratum is of lower velocity, some of the seismic energy is reflected upward. Sensing devices commonly called geophones are placed on the surface to detect these reflections. The geophones are connected to a data recording truck which stores data on magnetic tape. The average velocity for the section between the surface and a given reflector must be estimated if no bore hole seismic data are available. This velocity estimation is the source of many errors in the seismic interpretation of wildcat areas. There are many methods available today which can be used to induce the initial seismic energy into the earth. All methods require preliminary surveying and laying of geophones.

In remote areas where there is little known subsurface data, a series of short seismic lines may be used to determine the regional dip and strike of subsurface formations. After this, seismic lines will be aligned relative to the regional structure to make seismic interpretation more accurate. The seismic sensors and energy sources are located along lines on a 1- to 2-mile grid. Although alignment may be fairly critical, spacing of the lines can often be changed 0.25 mile on a 1-mile grid before the results will significantly affect the investigation program.

Vibroseis

The vibroseis method pounds or vibrates the earth to create shock waves. In this method, four or five trucks usually work close together in a line. The trucks are equipped with vibrating pads that shake the ground to produce shock waves, which are transmitted to a recording truck. Crosscountry travel of the trucks and shaking of the pad cause variable amounts of surface disturbance, depending on surface features and whether or not the ground is dry.

Drill or Shot Hole

The drilling method involves truck-mounted drills which drill small-diameter holes to depths of about 200 feet. Four to twelve holes are drilled per mile of line. Usually, a 50-pound charge of explosives is placed in the hole, covered, and detonated. The detonated explosives send energy waves below the earth's surface, which are reflected back to the surface from various subsurface rock layers. The holes are drilled in a linear fashion, forming a line that can be many miles in length. In rugged topography, a portable drill is sometimes carried in by helicopter. A typical drilling seismic operation may use 10 to 15 employees operating five to seven trucks. Under normal conditions, 3 to 5 miles of line can be tested each day using the explosive method. The vehicles used for a drilling program include several heavy truck-mounted drill rigs, water trucks, a computer recording truck, and several light pickups for the surveyors, shot hole crew, geophone crew, permit agent, and party chief. Existing public and private roads and trails are used. Off-road crosscountry travel may also be necessary. Motor graders and(or) dozers may be required to provide access to remote areas. Several trips a day are made along a seismograph line; this usually establishes a well-defined two-track trail. Drilling water, when needed, is usually obtained from private landowners or local city officials.

Surface Shots

Another portable technique is to carry the charges in a helicopter and place them on wooden sticks, or lath, about 3 feet above the ground. The charges used weigh either 2.5 or 5 pounds. Usually, ten charges in a line on the ground are detonated simultaneously.

Geophysical Management (Permitting Process)

Geophysical operations on and off a federal oil and gas lease are reviewed by the responsible federal surface management agency.

The responsibilities of the geophysical operator and the BLM District Manager or Area Manager during geophysical operations are as follows:

1. Geophysical Operator - The operator is required to file, in person or by mail, a "Notice of Intent to Conduct Oil and Gas Exploration Operations" for all operations on public lands

administered by BLM. Standard forms for this purpose are available in all BLM District offices. The notice includes maps showing the location of the line and all access routes, and must be filed in the appropriate BLM Resource Area office before operations begin.

The operator is required to be bonded. A copy of the bond or other evidence of satisfactory bonding must accompany the "Notice of Intent." Proper bonding can include a nationwide or statewide oil and gas bond with a rider for geophysical exploration or a $5,000 individual surety bond filed with the district manager.

Once the Notice of Intent has been filed, a prework conference or field inspection (if required) is conducted. The operator must comply with any special written instructions, orders, or approvals that may be given by the area manager at this prework conference.

Surface disturbing activities, such as bulldozing, require written approval by the area manager. Operators may be required to submit an archeological survey if surface disturbance is contemplated. The operator is required to comply with all applicable federal, state, and local laws such as the Federal Land Policy and Management Act of 1976, the Historic Preservation Act of 1966, and the Threatened and Endangered Species Act.

Any changes in the original Notice of Intent must be submitted in writing to the area manager. Written approval must be secured before activities proceed.

When operations are completed, the operator is required to file a Notice of Completion of Geophysical Exploration, after any required rehabilitation work is completed.

2. BLM Area Manager - The area manager is responsible for contacting the operator immediately after the Notice of Intent is filed and explain the terms of the Notice, including the operating procedures to be followed, all current laws, and all BLM administrative requirements. A prework conference or field inspection is conducted and written instructions or orders are given to the operator. The area manager is responsible for the examination of resource values and the development of appropriate surface protection and reclamation measures.

   Final inspection is the responsibility of the area manager following the filing of the Notice of Completion.

State Standards

In Wyoming, the operator is required to register with the state. State standards for plugging shot holes, personnel safety, etc., are followed.

Mitigation

Seasonal restrictions are imposed to reduce watershed damage and conflicts with wildlife and hunting activities.

The most critical management practice is compliance monitoring during and after geophyscal activity. Compliance inspections during the operation ensure that stipulations are being followed. Compliance inspections upon completion of work ensure that the lines are clean and the drill holes are properly plugged.

OIL AND GAS LEASING

The Mineral Leasing Act provides that all public lands are open to oil and gas leasing unless a specific order has been issued to close an area. Based on the Federal Onshore Oil and Gas Leasing Reform Act of 1987, all oil and gas leases are issued competitively by oral bid at lease sales, which are held at least quarterly. Competitive leases are issued with a primary term of five years or for as long as oil and(or) gas is produced. Appropriate stipulations are added to leases for resource protection prior to lease sales. Public notice of the available lands and the added stipulations are provided 45 days prior to the sale. Leasing is prohibited on wilderness and lands under study for wilderness.

Leases that receive either no bid or less than the minimum acceptable bid ($2 per acre) are offered as a noncompetitive lease (previously known as an over-the-counter [OTC] lease) for a period not to exceed 24 months. These leases are offered to the first qualified person to fill out a lease application, and upon payment of the application and first-year rental fees. Noncompetitive leases are issued for a term of ten years, or for as long as production continues.

Rental on nonproducing leases, competitive or noncompetitive, is $1.50 per acre per year for the first five years and $2.00 per acre thereafter. Royalties are paid in lieu of rental on producing leases, and half of the royalties are returned by the BLM to the state of Wyoming.

DRILLING PERMIT PROCESS

A federal lessee or operator is governed by procedures set forth by the Onshore Oil and Gas Order No. 1, "Approval of Operations on Onshore Federal and Indian Oil and Gas Leases," issued under 43 CFR 3164. Operating Order No. 1 lists the following pertinent points to be followed by the lessee or operator: notice of staking (NOS); application for permit to drill (APD), which includes a multi-point surface use and operations plan; approval of subsequent operations; well abandonment; water well conversion; responsibilities on privately owned surface; and reports and activities required after well completion.

1. Notice of Staking (NOS) - After a company makes the decision to drill a well, they may decide to submit an optional notice (the NOS) to the BLM prior to filing a complete APD. The NOS, which includes a location map and sketched site plan, aids in identifying the need for associated rights-of-way, special use permits, and potential conflicts with known critical resource values. The NOS is used for review of any conflicts with known critical resource values, and also is used at the onsite inspection to provide preliminary data to assess any additional items necessary to complete the APD.
2. Application for Permit to Drill (APD) - An operator or lessee may submit a completed APD in lieu of a notice of staking, but in either case no surface activity other than surveying and staking is conducted in conjunction with the drilling until the APD is approved by the BLM.

The drilling plan (8-point plan) and surface use plan of operations (13-point plan) are distinct and separate parts of an APD. The BLM is responsible for approval of the drilling plan for all wells drilled on lands with federal mineral estate, regardless of surface ownership. The surface management agency is responsible for approval of the 13-point plan. No surface activity can be conducted until all parts of the APD have been approved. A 30-day public posting of the lease terms and a map or narrative description of the lands affected by the APD is required prior to approval of the APD. If necessary, site-specific mitigations are added to the APD for protection of surface and(or) subsurface resource values in the vicinity of the proposed activity.

An onsite field inspection is held with the operator and any other interested party prior to approval of the APD. The purpose of the onsite inspection is to evaluate the operator's plan, to assess the situation for possible impacts (surface and subsurface), and to formulate resource protection stipulations. A surface-use rights provision establishes that BLM retains the right, over and above the leasing stipulations, to require modification of an operating plan if there are unique or sensitive resources discovered in a specific site. The BLM's right to require modification consistent with the lease rights granted is limited to requiring relocation of surface-disturbing activities up to 200 meters or prohibiting new surface-disturbing activities for up to 60 days per year. In appropriate cases, the BLM may grant a lease suspension if new surface disturbance is prohibited under this provision.

At the permitting stage, the BLM is responsible for preparing the environmental documentation that is necessary to satisfy the NEPA requirements and to provide any mitigation measures needed to protect the affected resource values.

Consideration is also given to the protection of groundwater resources. Plugging and abandonment procedures include measures to protect good quality groundwater from contamination by hydrocarbons or poorer quality water. Drilling procedures for new wells also address groundwater protection.

Contingency plans for the release of hydrogen sulfide gas (sour gas) are required for all drilling proposals that would penetrate a known or suspected hydrogen sulfide-bearing formation. These plans must provide for detection of hydrogen sulfide gas, countermeasures to control release of the gas, control of access to the drill site, notification of law enforcement agencies, and evacuation of the public.

Countermeasures used during the drilling phase may include a training program, personnel protective equipment, hydrogen sulfide gas detection and monitoring equipment, visible warning systems, blow-out preventors, and flaring facilities. This is not a complete list of countermeasures as each drilling proposal is handled on a case-by-case basis.

When final approval is given by the BLM, the operator may commence construction and drilling operations. Approval of an APD is valid for one year. If construction does not begin within one year, the stipulations must be reviewed prior to approving another APD.

Issuance of Rights-of-Way

Rights-of-way are required for all facilities, tank batteries, pipelines, truck depots, power lines, and access roads that occupy federally owned

land outside the lease or unit boundary. When a third party (someone other than the oil or gas company and the federal government) constructs a facility or installation on or off the lease, a right-of-way is also required.

Surface Disturbance Associated With Exploratory Drilling

Upon receiving approval to drill the proposed well, the operator moves construction equipment over existing roads to the point where the access road will begin. Generally, the types of equipment include track-mounted or rubber-tired dozers, scrapers, and motorgraders. Moving equipment to the construction site requires moving several loads (some overweight and overwidth) over public and private roads. Existing roads and trails are improved in places and occasionally culverts and cattleguards are installed if required.

The length of the access road varies. Generally the shortest feasible route is selected to reduce the haul distance and construction costs. Environmental factors or the landowner's wishes may dictate a longer route. In rough terrain, the type of construction is sidecasting (using the material taken from the cut portion of the road to construct the fill portion); slightly less than one-half of the road bed is on a cut area and the rest is on a fill area. Roads in relatively level terrain are usually constructed with a 18-foot-wide running surface. Soil texture, steepness of the topography, and moisture conditions may dictate surfacing the access road in some places, but generally not for the entire length. The total acreage disturbed for each mile of access road constructed varies significantly with the steepness of the slope.

Well location construction requires that all soil material suitable for plant growth be removed from areas to be disturbed and stockpiled in a designated area. Sites on flat terrain usually require little more than removing the topsoil material and vegetation. Drilling sites on ridge tops and hillsides are constructed by cutting and filling portions of the location. The majority of the excess cut material is stockpiled in an area that will allow it to be easily recovered for rehabilitation. It is important to confine extra cut material in stockpiles rather than cast it down hillsides and drainages where it cannot be recovered for rehabilitation.

The amount of level surface required for safely assembling and operating a drilling rig varies with the type of rig, but averages 300 feet by 350 feet. Figure 2 illustrates a typical well location layout. At least 25 feet between the drill point and the outer edge of the drilling platform is normally required to be on an area of cut instead of fill. This ensures that the foundation of the drilling derrick is on solid ground and prevents it from leaning or toppling due to settling of uncompacted soil.

In addition to the drilling platform, a reserve pit is constructed, usually square or oblong, but sometimes in another shape to accommodate topography. Generally, the reserve pit is 8 to 12 feet deep, but may be deeper to compensate for smaller length and width or deeper drilling depths.

Depending on the relation of the location to natural drainages, it may be necessary to construct water bars or diversions to control runoff. The area disturbed for construction and the potential for successful revegetation depends largely on the steepness of the slope.

Usually drilling activities begin within a week or two after the location and access road have been constructed. The drilling rig and associated equipment are moved to the location and erected. Moving a drilling rig requires moving 10 to 25 truck loads (some over legal weight and height) of equipment over public highways and private roads. The derrick when erected is approximately 160 feet high.

Water for drilling is hauled to the rig storage tanks or transported by surface pipeline. Water sources are usually rivers, wells, or reservoirs. Occasionally, water supply wells are drilled on or close to the site. The operator must obtain a permit from the Wyoming State Engineer for the use of surface or subsurface water for drilling. When BLM holds the water permits for surface water (stock ponds), BLM must also approve such use. When drilling commences, and as long as it progresses, water is continually transported to the rig location. Approximately 40,000 barrels or 1,680,000 gallons of water are required to drill an oil or gas well to the depth of 9,000 feet. More water is required if the underground formations are fractured enough to permit water to escape into them (lost circulation zones).

Drilling Operations

The success or failure of drilling and other subsurface operations cannot be determined by simply "looking down the hole," but instead, must be judged from indirect evidence such as downhole logs, drilling data, completion data, and many other data sets. Competent professionals are required to determine the character and adequacy of "downhole" operations. A downhole failure may take many years before the ramifications become apparent at the surface; by that time, the situation may be irreversible.

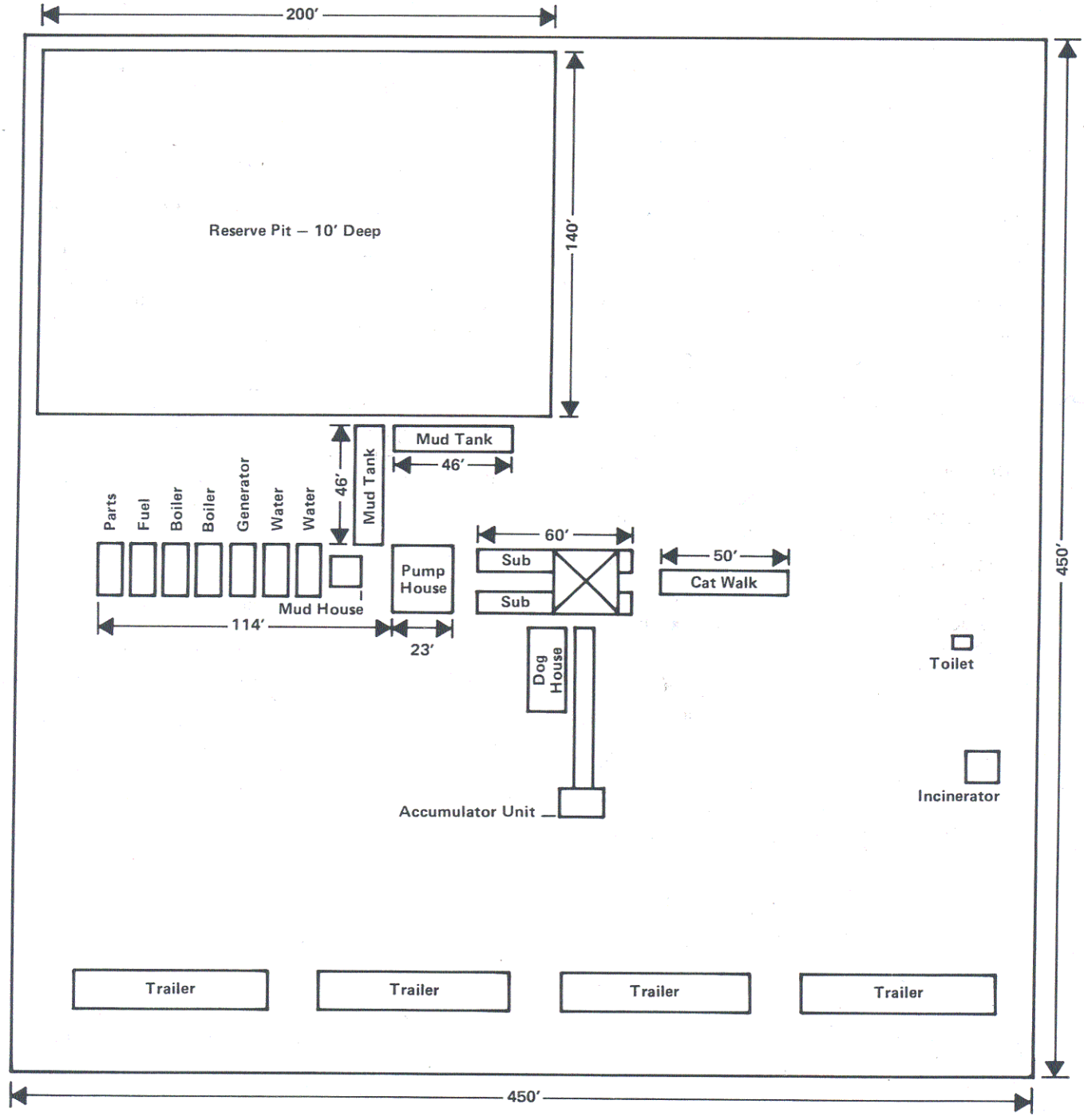


Figure 2
TYPICAL WELL LOCATION LAYOUT

Rotary Drilling

Starting to drill is called "spudding in" the well. Initial drilling usually proceeds rapidly mainly due to the incompetent (or soft) nature of shallow formations (figure 3). Drilling is accomplished by rotating special bits under pressure. While drilling, the rig derrick and associated hoisting equipment bear a great majority of the drill string's weight. The weight on the bit itself is generally a small fraction of the total drill string weight. The combination of rotary motion and weight on the bit causes rock to be chipped away at the bottom of the hole. The rotary motion is created by a square or hexagonal rod, called a kelly, which fits through a square or hexagonal hole in a large turntable, called a rotary table. The rotary table sits on the drilling rig floor and as the hole advances, the kelly slides down through it. When the kelly has gone as deep as it can, it is raised, and a piece of drill pipe 30 feet in length is attached in its place. The drill pipe is then lowered, the kelly is attached to the top of it, and drilling recommences. By adding more and more drill pipe, the hole can steadily penetrate deeper.

Drilling mud is circulated through the drill pipe to the bottom of the hole, through the bit, up the bore of the well, through a screen which separates the rock chips, and into holding tanks from which it is pumped back into the well. The mud is maintained at a specific weight and thickness to cool the bit, reduce the drag of the drill pipe on the sides of the well hole, seal off any porous zones, contain formation fluids to prevent a blowout or loss of drilling fluid, and bring the rock chips to the surface for disposal. Various additives are used in maintaining the drill mud at the appropriate viscosity and weight. Some of the additives are caustic, toxic, or acidic, but these hazardous additives are used in relatively small amounts during drilling operations.

Eventually, the bit becomes worn and must be replaced. To change bits, the entire string of drill pipe must be pulled from the hole, usually in sections 90 feet long, until the bit is out. The bit is replaced and then the drill string is reassembled and lowered into the hole, section by section, and drilling is started again. The process of removing and reinserting the drilling string uses much of the time required in drilling.

Drilling operations are continuous, 24 hours a day and 7 days a week. The crews usually work three 8-hour shifts or two 12-hour shifts a day. Pickups or cars are used for workers' transportation to and from the site.

Upon completion of the drilling, the equipment is removed to another location. If oil or gas is not discovered in commercial quantities, the well is considered dry. The operator is then required to follow the plan approved as part of the APD when plugging a dry hole. The drill site and access road are rehabilitated in accordance with the stipulations attached to the approval of the well site.

Casing and Cementing

Various types of casing are placed in the drilled hole to enhance hole integrity. Casing is a string of steel pipe which is comprised of many 30-foot lengths of pipe which are "screwed" together. Casing is cemented into the well to protect against fluids or rock entering the well bore.

Surface casing which is properly set and cemented also protects aquifers from being contaminated by drilling and production operations. Surface casing is set to a depth greater than the deepest fresh water aquifer which could reasonably be developed. Fresh water may exist at greater depths but these aquifers are not normally considered to be important fresh water sources.

Surface casing is large enough to allow subsequent lengths of smaller casing to be set as the well is drilled deeper. Cement is placed in the annulus of the surface casing from casing shoe to ground level. That is, the entire space between the outside of the casing and the borehole wall is filled. Generally only the bottom few hundred feet of intermediate or production casing is cemented which often leaves several thousand feet of open hole behind some casing strings. Casing in open hole (uncemented annulus) is not considered adequate to protect zones of fresh water or minerals from contamination. The annulus must be properly filled with cement to provide adequate protection from inter-zonal migration.

Currently, the operator is only required to cement off "hydrocarbon-bearing zones." Generally, operators define hydrocarbon-bearing zones to be those zones which produce enough oil or gas to measure, therefore, some hydrocarbon bearing zones are not cemented. Production casing or liner is intended to provide a conduit for the production of oil and gas so that little or no product is lost in "up-hole zones."

Blowout Prevention

In the early days of drilling, no blowout prevention equipment was used. Today special attention is paid to blowout prevention and much of the equipment associated with drilling rigs is for handling excess pressure at the surface. Blowout prevention equipment is tested and inspected regularly by both the rig personnel and the inspection

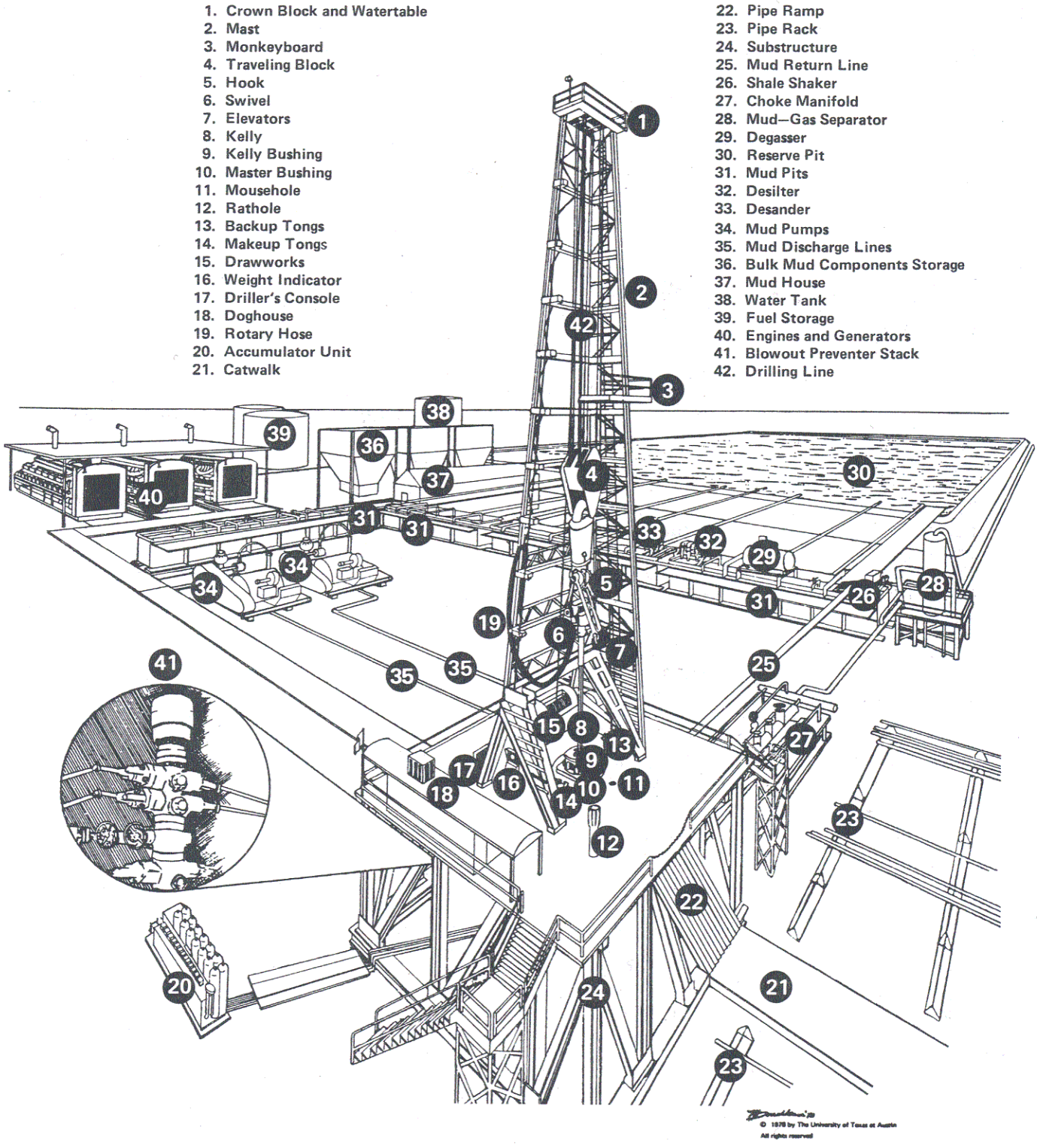


Figure 3
THE ROTARY RIG AND ITS COMPONENTS

and enforcement branch of the BLM. Reasonably good standards are currently in effect and operators are willing to follow them due to the dangerous nature of an uncontrolled flow from the well. Well trained rig site personnel are necessary for proper blowout prevention.

Casing setting depth is also important with regard to blowout prevention. The casing shoe must be set in rock which is competent to withstand the maximum anticipated pressure to which it will be exposed.

WELL COMPLETION OPERATIONS

Well Completion and Production

Completion of a well calls for the installation of steel casing, which is cemented in, to provide stability and to protect specific underground zones. The casing is perforated into the zone or structure containing the oil or gas. The equipment installed on the casing of a producing well consists of various valves and pressure regulators which are used to control the oil or gas flow to production facilities.

Pipeline quality gas at the wellhead requires a minimum of processing equipment. As the quality of gas decreases with the increased presence of water, dissolved solids, or liquid hydrocarbons, the amount of processing equipment increases. Water or liquid hydrocarbons in the gas are removed before the gas is mixed with other gas, usually at the wellhead.

Oil wells can be completed as flowing (those wells with sufficient underground pressure to raise the oil to the surface) or if the pressure is inadequate, they are completed with the installation of pumps, usually pumpjacks. Pumpjacks come in a variety of sizes, the larger ones reaching a height of 30 to 40 feet. Pumps are powered by internal combustion engines or electric motors. Fuel for the engines may be casinghead gas or propane.

Wyoming law prohibits the flaring or venting of natural gas. Exceptions allowed by the Wyoming Oil and Gas Commission are: (1) during testing of a new well, or (2) when the amount of gas produced with the oil is so small that pipeline construction is not practical. Otherwise, if a well produces both oil and gas, provisions for shipping the gas must be made before oil production can continue.

The production equipment (heater-treater, holding facility for production water, if any is present, and tank battery) are either placed on a portion of the location (on cut rather than fill) or located a short distance from the wellhead along the access road. Production facilities are painted to blend with the surrounding landscape unless otherwise specified. The heater-treater and tanks are surrounded by earthen dikes to contain accidental spills. Either all the facilities may be fenced, or only the production water pit may be fenced.

Production facilities require precautions similar to drilling requirements for the control of released hydrogen sulfide gas. In addition, plans may include the re-injection of produced gas, processing of hydrogen sulfide gas, or flaring. These processes usually involve other agency approvals and monitoring requirements.

Plugging and Abandonment of Wells

The purpose of plugging and abandoning (P&A) a well is to prevent fluid migration between zones, to protect minerals from damage, and to reclaim the surface. Each well has to be handled individually due to a combination of factors, including geology, well design limitations, and specific reclamation concerns. Therefore, only minimum requirements can be established, then modified for the individual well.

The first step in the P&A process is the filing of the Notice of Intent to Abandon (NIA). This will be reviewed by both the surface management agency (other than the BLM) and the BLM District Office. The NIA must be filed and approved prior to plugging a well that previously produced oil or gas. Verbal plugging instructions can be given for plugging a well that is currently undergoing drilling operations, but an NIA must be filed after the work is completed. If usable fresh water was encountered while the well was being drilled, the surface management agency will be allowed, if interested, to assume future responsibility for the well and the operator will be reimbursed for the attendant costs.

The operator's plan for plugging the hole is reviewed. The minimum requirements are as follows: In open hole situations, cement plugs must extend at least 50 feet above and 50 feet below zones with fluid that has the potential to migrate, zones of lost circulation (this type of zone may require an alternate method to isolate), and zones of potentially valuable minerals. Thick zones may be isolated using 100-foot plugs across the top and bottom of the zone. In the absence of produc-

tive zones and minerals, long sections of open hole may be plugged with 100-foot plugs placed every 2,500 feet. In cased holes, cement plugs must be placed opposite perforations and extending 50 feet above and 50 feet below, except where limited by existing cement. Any annular space that extends to the surface is plugged with a minimum of 100-feet of cement to the surface. A cement plug of at least 50 feet, but not less than 25 sacks of cement, is placed in the smallest casing extending to the surface. Any plugs with questionable integrity (stability) are tagged (tested). Each of the intervals between the plugs is filled with mud of sufficient density to balance the plugs and ensure continued integrity of the well bore.

A permanent abandonment marker is required on all wells unless otherwise requested by the surface management agency. This marker pipe is usually at least 4 inches in diameter, 10 feet long with 4 feet above the ground, and embedded in cement. The pipe must be capped with the well identity and location permanently inscribed.

Within 30 days after plugging procedures have been completed, a Subsequent Report of Abandonment (SRA) must be submitted. The SRA will have the actual method of plugging including locations and amounts of cement in place. If there were no changes between the NIA and the actual plugging procedure, the NIA and SRA will be identical.

The surface management agency is responsible for establishing and approving methods for surface reclamation and must determine when this reclamation has been satisfactorily accomplished. This could take up to two years, or even more in areas with extremely low annual precipitation. When the agency is satisfied that reclamation has occurred to previously determined specifications, a Final Abandonment Notice (FAN) will be submitted. Upon receipt and approval of the FAN, the operator is no longer liable for the location and the bond may be released.

Oil and Gas Exploratory Units

Surface use in an oil or gas field may be affected by unitization of the leaseholds. In areas of federally owned minerals, an exploratory unit is formed before a wildcat exploratory well is drilled. The boundary of the unit is based on geologic data. The developers of the unit can enter into an agreement to develop and operate as a unit, without regard to separate lease ownerships. Costs and benefits are allocated according to agreed-upon terms.

Unitization reduces the surface use requirements because all wells are operated as though on a single lease. Duplication of field processing facilities is minimized, because development and operations are planned and conducted by a single operator. Power lines often are distributed throughout the unit and diesel engines are converted to electric motors. Unitization may also involve wider spacing than usual, resulting in fewer wells. Access roads are usually shorter and better organized.

OIL RECOVERY METHODS

Primary Recovery

An oil reservoir typically contains oil, gas, and water trapped within fine rock pores under tremendous pressures. Because of the pressure, much or all of the gas and water which is dissolved in the oil, expands and forces oil out of the pores, into the well, and up to the surface. Primary recovery is production from a reservoir by natural energy (gas cap, solution gas, or water drive) that results in free flowing wells or wells on a pump with the oil flowing freely by gravity to the wellbore. As the oil flows out of the rock, it drains energy from the formation; pressure in the reservoir begins to slowly decline; the primary drive diminishes and the production rate falls. At this point, as much as 80 percent of the original oil may still remain in the reservoir. To keep oil flowing, pressure from within the reservoir is required. To accomplish this, "secondary recovery" or "tertiary recovery" techniques must be used.

Secondary Recovery

Secondary recovery is the extraction of oil from a field beyond what can be recovered by normal methods of flowing pumping. The most common secondary recovery methods include waterflood, gas injection, and steam injection.

Waterflooding is the secondary recovery method most often used. Water is injected into the producing formation to replace the volume of oil extracted and provides a driving force while maintaining reservoir pressure. In reservoirs that are receptive to it, waterflooding may push out an additional 30 percent of the original oil in place. Water, which does not mix with oil, generally leaves about half the original oil behind in the form of small droplets trapped by capillary forces in the rock pores. Releasing oil that water alone will not move requires either chemicals, solvents, or heat. But, water flooding is not a final remedy applied only to dying reservoirs. Water injection

wells may be drilled in newly discovered fields, along with development wells to maintain pressure as early as possible and lengthen the life of the reservoir.

Carbon dioxide (CO_2) gas is also injected into oil reservoirs, sometimes after waterflooding, to recover more oil. Ideally, for most efficient displacement, CO_2 should mix with the oil; but, it does this only gradually, if at all. Moving through the reservoir, CO_2 will extract some of the lighter hydrocarbons from the oil; and as it becomes enriched with these, it achieves a composition which allows it to mix with the oil. From this point on, a "miscible flood" is achieved which should displace virtually all of the oil from the rock matrix.

Among thermal processes, steam injection is the most common. Steam recovers 77 percent of all oil produced by enhanced recovery methods. Unlike chemicals, which alter the relationship of oil to the flooding medium and to the reservoir rock, steam helps heavy oil to flow by reducing its viscosity, and by thermal expansion within the reservoir. Steam distillation also assists in moving oil, particularly lighter oils.

APPENDIX B

PROBLEMS, OPPORTUNITIES AND OBJECTIVES FOR GRAZING MANAGEMENT

Table B-1 describes the most common problems encountered in the administration and management of livestock grazing on public lands in the Washakie Resource Area. It also describes in general terms, what management actions can be used to correct the problems. The table is intended to provide an overview of how grazing management or administration could be used to improve the situations listed. The situations described do not apply to all allotments, nor do the management actions take into account all multiple-use management considerations.

TABLE B-1

PROBLEMS, OPPORTUNITIES AND OBJECTIVES FOR GRAZING MANAGEMENT

Situation	Management Action
Grazing season and grazing habits of different kinds and classes of livestock can reduce the quality and quantity of vegetation produced by a plant community.	Change the season and/or the class or kind of livestock. Designate the season and kind of livestock for the allotments that currently have no designation. Implement grazing systems that will provide for plant maintenance requirements. As a general rule, on all allotment categories, adjustments would limit use prior to seed ripe on key forage species to 1 year out of 2 or 3 in areas with less than 10 inches of annual precipitation and 1 year out of 2 in areas with 10 or more inches of precipitation. A rest cycle would be considered any time use occurs prior to seed ripe. As a goal, use of key species on selected key areas would be limited to a level that would meet the objectives of allotment management, normally a maximum of 50 percent utilization by wildlife and livestock of the current year's production (Bell, 1973).

APPENDIX B

TABLE B-1 (Continued)

PROBLEMS, OPPORTUNITIES AND OBJECTIVES FOR GRAZING MANAGEMENT

Situation	Management Action
Livestock use can be poorly distributed within an allotment or pasture. This can result in heavy utilization of some sites while others may receive little or no grazing use.	Develop new water sources to distribute livestock use more evenly. Construct drift fences to alter traditional grazing patterns. Specify locations for placement of salt or mineral supplements. Require herding of livestock. Authorize the class or kind of livestock that will best utilize the allotment.
Current levels of livestock use may exceed the desired use levels for the allotment.	Adjust the level of livestock use to meet desired levels based on monitoring studies.
Some sites that are now producing a quality and quantity of forage well below their potential have a poor potential to respond to changes in grazing management alone.	Restore productivity of these sites through mechanical treatment, prescribed fire and/or seeding with native species or well-adapted introduced species.
Investments in range improvements needed to implement changes in grazing management often do not have favorable benefit/cost ratios for the U.S. Government.	Solicit contributions from range users and other parties benefiting from changed grazing management. Design grazing management systems that require a minimum investment in range improvements but will meet the stated objectives.
Plant and animal pests can adversely affect livestock and vegetative productivity.	In cooperation with other affected land owners and agencies, take actions to control concentrations of pests.
Some kinds of livestock and/or seasons of use of livestock grazing conflict with wildlife use in the the same areas (Mackie). Diets of sheep overlap significantly with elk antelope and mule deer, and diets of cattle overlap significantly with elk and bighorn sheep in all seasons and with antelope and mule deer in the spring and on poor condition ranges.	Proposed changes in livestock grazing will be evaluated for impacts to wildlife habitat. If identified impacts cannot be mitigated through livestock grazing management (i.e., lighter grazing use levels, grazing systems, nonuse areas, etc.) the proposed changes may not be allowed.
Projects, such as fences and water developments, often change livestock grazing patterns and/or create physical hazards and disturbances. These changes can increase conflicts with current wildlife use, visual resources, watershed, and other resource uses and values.	Proposed projects will be evaluated for impacts to wildlife, wildlife habitat, and other uses and values. If identified impacts cannot be mitigated, the projects may not be allowed.

APPENDIX C

SUMMARY OF ALLOTMENT CONDITION AND AUTHORIZED USE

This appendix consists of a table that summarizes the allotment condition and authorized livestock grazing use for each allotment in the Washakie Resource Area. The table begins on the next page.

The ecological range condition shown on the table relates to the present plant community of each ecological site in relation to the climax (natural potential) plant community for that site. The ecological condition was determined by a field visit to each range site. At each site, the relative proportion that each species of plant made up of the total production was estimated. This was compared to the proportions that should be present in the climax community. No total production estimates in pounds per acre were recorded; therefore, no adjustments in condition classes were made if the total production of the site was less than expected.

TABLE C-1

SUMMARY OF ALLOTMENT CONDITION AND AUTHORIZED USE

Allotment Number	Allotment Name	Mgmt. Status M,I,C	Rank[1] No.	Total Acres	Present Ecological Range Condition Public, Private and State Land Areas					Total Acres		Kind[2] of Livestock	Season of Use	Public Land AUMs
					Excel.	Good	Fair	Poor	Unclass./ Unmapped	Public Land	Other			
0001	Manderson Group	I	3	6,531	648	3,490	1,225	837	331	6,531	0	C	04/16 to 08/30	779
												S	02/01 to 02/28	
0002	Weber Lower	I	1	35,390	2,930	17,463	10,903	448	3,646	32,156	3,234	S	05/06 to 06/20	2,762
												S	09/16 to 02/13	
												C	05/09 to 07/30	
												C	09/01 to 10/31	
0003	Forks	I	1	4,510	745	2,077	1,139	0	549	4,510	0	H	04/16 to 12/15	1,096
												C	05/10 to 07/10	
												C	10/16 to 11/15	
0004	Gapen Hyatt	I	1	12,943	158	4,131	4,762	2,721	1,171	10,139	2,804	C	05/15 to 07/14	870
												C	11/01 to 11/30	
0005	Southside Group	I	1	35,585	5,557	19,755	5,242	988	4,043	27,798	7,787	H	03/01 to 02/28	3,563
												C	05/01 to 06/30	
												C	10/26 to 11/21	
0006	Sand Creek Group	I	3	9,374	113	3,471	4,267	375	1,148	8,511	863	C	04/16 to 06/15	729
												C	11/01 to 12/31	
0007	Worland Cattle Grp	I	2	14,870	2,008	608	2,084	1,741	8,429	13,270	1,600	C	05/01 to 02/05	1,110
0008	Castle Gardens	I	2	20,926	3,255	13,158	2,588	538	1,387	18,359	2,567	C	04/15 to 06/25	3,496
												C	10/22 to 02/8	
0009	Kimball	I	2	9,695	528	8,304	487	102	274	6,352	3,343	C	05/01 to 06/25	825
												S	05/01 to 05/31	
0010	Gordon	M		3,300	2,550	367	355	0	28	2,714	586	C	10/21 to 1/20	863
0011	Joe Henry	I	2	7,083	854	4,406	1,682	0	141	6,522	561	C	04/26 to 06/10	1,301
												S	04/26 to 06/10	
0012	Big Trails Group	I	1	23,443	5,323	9,431	7,788	116	785	22,021	1,422	H	12/01 to 03/31	5,309
												C	04/21 to 06/20	
												C	11/01 to 1/15	
0013	Nowood Individual	C		655	0	237	132	0	286	100	555		None Designated	10
0014	Mileski Badlands	I	2	9,637	289	4,385	4,735	53	175	9,229	408	C	05/15 to 06/14	825
												C	10/01 to 10/30	
0015	Lower Nowater	I	2	4,927	2	1,725	2,382	215	603	4,918	9	S	03/16 to 04/25	699
												S	12/16 to 01/15	
0016	Badlands	I	3	9,416	3,678	4,583	193	0	962	8,462	954	S	04/23 to 05/31	659
												S	12/01 to 01/16	
0017	Rome Hill	M		1,567					1,567	240	1,327	S	06/01 to 10/31	240
0018	Upper Nowater	I	3	6,032	1,010	3,283	966	56	717	6,030	2	S	03/16 to 04/16	743
												S	12/16 to 01/31	
0019	Slope	I	3	7,699	893	3,104	2,203	0	1,499	2,629	5,070	C	04/10 to 06/30	612
												S	09/10 to 11/25	
												C	09/15 to 12/15	
0020	Ainsworth	I	3	2,323	0	1,430	584	0	309	1,682	641	S	05/01 to 05/23	202
												S	11/26 to 12/15	
0021	Cottonwood	I	3	2,732	14	1,455	627	211	425	2,731	1	C	05/01 to 06/15	283
												C	10/01 to 12/23	
0022	Brokenback	I	3	1,197	315	367	17	0	498	672	525	C	06/18 to 08/31	48
0023	Leikham	I	2	1,879	0	0	1,822	0	57	1,788	91	C	05/01 to 06/15	175
												C	11/01 to 11/30	

TABLE C-1 (Continued)

SUMMARY OF ALLOTMENT CONDITION AND AUTHORIZED USE

Allotment Number	Allotment Name	Mgmt. Status M,I,C	Rank[1] No.	Total Acres	Present Ecological Range Condition Public, Private and State Land Areas					Total Acres		Kind[2] of Livestock	Season of Use	Public Land AUMs
					Excel.	Good	Fair	Poor	Unclass./ Unmapped	Public Land	Other			
0024	Beckley	I	3	1,745	367	676	264	103	335	1,745	0	C&S	04/26 to 06/10	485
												C&S	10/10 to 12/31	
0025	Nowood Individual	I	3	1,446	23	406	672	50	295	1,097	349	C	12/01 to 12/22	72
0026	Cottonwood	I	3	2,715	0	1,462	168	246	839	1,790	925	C	04/24 to 06/30	139
0027	Mountain	I	2	992	0	395	333	0	264	671	321	C	07/01 to 09/30	302
0028	Nowood Individual	C		673	0	278	340	0	55	69	604		None Designated	15
0029	Lost Creek	M		1,443	816	430	21	0	176	110	1,333		None Designated	20
0030	Cottonwood	I	3	5,643	10	1,544	1,820	712	1,557	4,655	988	C	04/20 to 06/20	405
0031	Brokenback	I	1	16,956	4,497	6,438	2,355	68	3,598	12,921	4,035	H	03/01 to 02/28	1,466
												C	06/16 to 01/31	
0032	Hidden Dome	I	2	9,165	200	5,243	3,144	192	386	8,521	644	C	04/01 to 06/15	728
												C	12/01 to 02/10	
0033	Alkali	I	2	2,736	0	494	1,586	281	375	1,969	767	H	01/01 to 03/31	287
												C	05/01 to 06/21	
0034	Sand Creek	I	3	12,162	310	7,210	2,715	78	1,849	12,158	4	S	03/01 to 05/31	1,243
												S	12/01 to 01/27	
0035	Buffalo Canyon	I	3	5,526	1,632	2,315	1,043	22	514	3,979	1,547	S	05/01 to 06/05	719
												S	12/01 to 02/20	
0036	Manderson	C		9,643	1,177	3,581	3,743	301	841	9,328	315	S	01/12 to 04/01	814
0037	Tensleep	I	2	2,592	0	1,819	466	0	307	1,443	1,149	C	04/26 to 06/25	139
0038	Mountain Individual	I	3	5,696	1,894	2,170	469	0	1,163	800	4,896		None Designated	240
0039	Warner Draw	C		702	18	205	439	22	18	701	1	S	05/15 to 08/11	58
0041	Fatty Allen	I	3	1,362	82	1,060	43	0	177	1,315	47	C	04/20 to 06/05	166
												C	11/06 to 12/21	
0042	East Fork	I	2	9,028	878	378	399	0	7,373	8,193	835	C	05/01 to 06/22	900
												C	11/01 to 01/15	
0043	North Tensleep	M		2,307	975	869	232	137	94	1,737	570	C	05/01 to 06/15	100
												C	11/10 to 12/31	
0044	South Tensleep	M		980	0	539	99	329	13	602	378	H	02/01 to 06/30	
0045	South Pasture	I	3	1,140	63	126	839	6	106	328	812	C	11/01 to 11/15	49
0046	Sand Springs	I	3	1,586	0	401	663	0	522	1,447	139		None Designated	67
												C	06/15 to 06/30	160
												H	07/01 to 01/31	
0047	Hyattville Ind.	I	2	2,924	188	1,666	597	288	185	2,884	40	C	09/16 to 10/25	
0048	Neiber	I	1	25,310	35	11,793	7,368	143	5,971	24,460	850	C	04/20 to 06/19	210
												C	11/22 to 04/15	2,075
0049	Murphy Dome	I	3	2,884	828	945	557	0	554	1,891	993	S	12/15 to 03/14	
												C	03/01 to 04/30	423
0050	Mud Creek	I	1	2,301	682	267	603	271	478	662	1,639	C	01/06 to 02/28	
0051	Farley	I	3	2,315	0	1,422	666	0	227	706	1,609	C	12/06 to 05/15	170
												C	05/01 to 05/15	80
0052	Prevo Individual	C		291	5	203	49	11	23	291	0	C	11/01 to 11/30	
0053	Ranch Individual	C		938	51	240	128	0	519	280	658	C	04/16 to 06/05	25
0054	North Paintrock	I	3	1,333	218	467	595	21	32	1,333	0	C	06/01 to 06/30	54
0055	Individual	C		247	0	174	69	0	4	201	46	C	04/22 to 05/16	101
0056	Scott Min	I	2	1,583	856	358	61	15	293	506	1,077	H	05/01 to 09/30	25
												S&C	06/10 to 10/15	177

TABLE C-1 (Continued)

SUMMARY OF ALLOTMENT CONDITION AND AUTHORIZED USE

Allotment Number	Allotment Name	Mgmt. Status M,I,C	Rank[1] No.	Total Acres	Present Ecological Range Condition Public, Private and State Land Areas					Total Acres		Kind[2] of Livestock	Season of Use	Public Land AUMs
					Excel.	Good	Fair	Poor	Unclass./ Unmapped	Public Land	Other			
0057	Individual	I	2	2,963	22	139	1,485	839	478	2,821	142	C	05/01 to 08/31	155
0058	Mathews Ridge	I	1	2,319	201	1,374	83	12	649	2,319	0	C	07/01 to 10/31	416
0059	North House	C		455	91	226	131	0	7	455	0	H	12/16 to 03/31	26
0060	Mesa	M		1,034	80	710	0	0	244	96	938	C	06/01 to 06/30	22
0061	Ainsworth Individual	M		1,263	266	244	59	0	694	108	1,155	C	06/01 to 06/30	10
0062	Ainsworth	I	2	1,988	310	871	543	0	264	1,065	923	C&H	05/01 to 06/20	130
0064	Spanish Point	I	1	3,310	407	2,015	25	0	863	1,215	2,095	C&S	None Designated	185
0065	Sheep Springs	M		2,036	29	1,729	0	0	278	1,263	773	S	06/01 to 06/30	501
												C	07/01 to 07/31	
												C	09/01 to 11/15	
												S	09/20 to 11/20	
0066	Meyers Spring	I	1	1,807	124	596	817	39	231	1,682	125	S	06/01 to 09/30	416
												S	11/01 to 11/25	
0067	Deeter	M		5,345	919	1,222	1,028	15	2,161	565	4,780	C&S	None Designated	119
0068	Box Elder	I	2	2,742	283	1,273	732	57	397	936	1,806	C	None Designated	423
0069	Mahogany Butte	I	1	3,435	735	1,418	766	0	516	2,680	755	C	05/01 to 06/15	433
												C	04/15 to 08/31	
0070	S V	I	2	3,260	286	2,215	34	77	648	3,016	244	C	04/11 to 06/10	330
												C	11/01 to 11/30	
0071	Chalk Butte	M		4,737	551	3,604	312	0	270	4,724	13	C	11/30 to 06/10	644
0072	Helms	M		1,044	97	716	55	0	176	228	816	S&C	None Designated	45
0073	Sand Creek	I	2	12,199	43	7,329	2,089	304	2,434	11,538	661	S	12/06 to 03/15	1,462
0074	Nowater	I	2	15,648	442	7,768	5,178	236	2,024	13,923	1,725	C	11/27 to 06/05	1,776
												S	04/01 to 05/31	
												S	11/01 to 12/05	
0075	Battle Creek	M		2,997	515	1,890	122	0	470	430	2,567	C	07/20 None Designated	109
0076	Lower Walker	I	2	7,564	922	2,660	2,230	324	1,428	6,091	1,473	C	11/01 to 02/28	555
0077	Middle Walker	I	2	3,889	512	1,491	1,406	0	480	2,554	1,335	C	12/01 to 05/15	310
												H	12/01 to 05/15	
0078	Upper Walker	I	2	2,634	644	370	804	0	816	1,219	1,415	C	11/01 to 04/15	173
0079	Lake Creek	I	2	3,015	13	2,166	612	0	224	1,066	1,949	H	12/01 to 04/30	244
												C	04/16 to 05/31	
												C	10/10 to 11/15	
0080	Sandfords Murphy Dome	I	2	10,375	3,430	4,878	1,449	98	520	6,644	3,731	C	11/19 to 04/30	888
												H	04/01 to 04/30	
0081	Lower Arnold	I	2	1,590	0	943	167	291	189	1,568	22	C	05/01 to 05/15	200
												C	11/14 to 11/18	
0082	Upper Arnold	I	2	1,146	0	545	434	35	132	981	165	C	05/16 to 06/04	276
												C	11/04 to 11/13	
0083	K I S	I	2	2,545	212	1,477	575	0	281	1,607	938	C	06/05 to 06/20	325
												C	08/20 to 11/03	
												H	08/20 to 10/31	
0084	Trapper Creek	I	1	3,094	15	2,550	152	0	377	1,846	1,248	C	None Designated	153
0085	Individual	C		200	0	0	0	0	200	70	130		None Designated	2
0086	Daugherty Dewitt	M		2,470	134	1,186	182	0	968	1,320	1,150	C	05/16 to 06/15	148
0087	Mountain Ind.	M		371	0	119	4	0	248	371	0	C	06/16 to 07/15	55
0088	Patras	I	2	2,513	60	2,067	176	0	210	1,275	1,238	C	05/01 to 12/31	416

TABLE C-1 (Continued)

SUMMARY OF ALLOTMENT CONDITION AND AUTHORIZED USE

Allotment Number	Allotment Name	Mgmt. Status M,I,C	Rank[1] No.	Total Acres	Present Ecological Range Condition Public, Private and State Land Areas					Total Acres		Kind[2] of Livestock	Season of Use	Public Land AUMs
					Excel.	Good	Fair	Poor	Unclass./ Unmapped	Public Land	Other			
0089	Big Bend	I	2	8,472	1,773	4,086	1,859	153	601	7,205	1,267	C	12/16 to 05/15	1,429
0090	Mountain	I	2	6,941	612	3,182	1,636	4	1,507	3,100	3,841	C	05/16 to 06/30	811
												C	09/16 to 12/15	
0091	Sand Creek	I	2	26,606	2,506	15,920	4,330	554	3,296	25,189	1,417	H	11/01 to 02/28	
												C	04/01 to 06/10	2,183
0092	Paintrock Canyon	I	1	12,852	937	7,054	1,298	17	3,546	7,637	5,215	C	10/17 to 12/20	
												C	05/01 to 11/20	1,260
0093	Long Point	I	2	1,452	397	409	181	0	465	876	576	H	04/16 to 12/31	
0094	Red Hills	I	1	7,500	1,087	4,330	734	644	705	7,387	113	C	None Designated	103
0095	Forks	I	1	4,143	395	3,363	128	0	257	4,115	28	C	04/27 to 07/31	691
												H	04/16 to 12/31	1,004
												C	05/01 to 07/31	
0096	Bonanza	I	3	1,396	0	227	267	634	268	1,395	1	C	10/01 to 12/03	
0097	Badlands	M		2,962	1,305	868	391	309	89	2,956	6	S	05/01 to 06/15	62
0098	Slope	M		4,538	0	1,016	284	0	3,238	726	3,812	C	09/10 to 02/28	611
0099	Individual	C		3,230	1,368	1,251	292	32	287	3,229	1	C	None Designated	60
0100	Sand Creek Ind	C		2,035	0	586	1,206	132	111	1,852	183	C	04/16 to 06/05	170
0101	Ranch Individual	M		2,793	80	1,017	646	31	1,019	1,040	1,753	C	12/01 to 01/07	163
												C	05/01 to /10	153
0102	Mountain Individual	M		876	12	101	0	0	763	150	726	C	10/16 to 10/30	
0103	Lost Creek	M		1,096	489	340	0	0	267	116	980	C	None Designated	43
0104	Cottonwood	I	3	2,690	0	1,164	782	228	516	2,229	461	C	None Designated	12
0105	Nowater	I	2	9,733	245	4,292	2,073	85	3,038	9,691	42	S	04/10 to 06/05	243
0106	Bald Ridge	M		2,559	1,152	776	68	0	563	337	2,222	S	02/01 to 05/31	732
0107	Honey Combs	I	2	31,588	810	13,481	9,342	94	7,861	29,158	2,430	C	None Designated	51
												C	04/01 to 06/30	2,320
0108	Dixon Canyon	I	3	953	0	0	600	225	128	823	130	C	12/01 to 02/15	
0109	Individual	C		2,285	0	446	1,802	15	22	420	1,865	C	07/01 to 07/31	60
												C	None Designated	75
0110	Bud Kimball	I	2	8,967	1,425	4,420	2,230	462	430	7,206	1,761	C	11/24 to 02/02	
0111	Otter Creek	I	2	633	0	270	269	0	94	633	0	C	04/21 to 06/20	900
0112	Faure Nowater	I	2	3,619	0	1,160	1,256	851	352	3,603	16	C	06/15 to 10/16	134
												S	04/16 to 06/15	471
0113	North Nowood	I	3	1,395	0	350	952	69	24	1,395	0	S	02/05 to 02/15	
												S	04/01 to 04/22	155
0114	South Nowood	I	3	3,534	0	208	2,542	0	784	2,923	611	S	02/01 to 02/13	
0116	Bader Gulch	M		1,568	0	0	0	0	1,568	484	1,084	S	12/01 to 01/08	259
0117	Pierson Mountain	M		2,096	0	0	0	0	2,096	240	1,856	C	None Designated	44
0118	Big Bend Common	I	1	14,501	379	6,730	4,607	1,595	1,190	14,238	263	C	None Designated	39
												C	12/16 to 04/30	1,497
												S	04/16 to 06/23	
0119	Bluebank	M		8,927	4,797	3,685	405	0	40	7,023	1,904	S	12/01 to 02/04	
												C	04/20 to 06/25	1,267
0120	Buffalo Creek	I	2	5,061	1,657	2,158	846	126	274	3,860	1,201	C	11/01 to 02/28	
												C	04/16 to 06/20	924
0122	Harvard Individual	M		2,884	0	0	0	0	2,884	238	2,646	C	11/01 to 02/10	
												C	None Designated	37

TABLE C-1 (Continued)

SUMMARY OF ALLOTMENT CONDITION AND AUTHORIZED USE

Allotment Number	Allotment Name	Mgmt. Status M,I,C	Rank[1] No.	Total Acres	Present Ecological Range Condition Public, Private and State Land Areas					Total Acres		Kind[2] of Livestock	Season of Use	Public Land AUMs
					Excel.	Good	Fair	Poor	Unclass./ Unmapped	Public Land	Other			
0123	Buffalo Sand Point	I	1	40,225	5,860	23,233	8,818	34	2,280	28,614	11,611	C	11/01 to 06/15	6,814
												H	03/01 to 02/28	
0124	West Side Summer	I	1	26,851	2,460	10,125	4,085	501	9,680	9,337	17,514	C	04/16 to 10/31	710
0125	East Side Summer	I	1	5,568	264	3,230	1,086	0	988	2,114	3,454	C	None Designated	460
0127	Otter Creek Pastures	I	1	6,681	0	523	3,652	1,710	796	4,031	2,650	C	05/01 to 05/31	575
												C	11/01 to 11/30	
0129	Lower Mazet	M		2,048	0	1,029	696	0	323	334	1,714		None Designated	26
0130	Lower VS	I	1	3,400	0	1,817	1,249	0	334	1,570	1,830	C	06/10 to 07/09	429
												C	10/01 to 11/15	
0131	High Camp	I	1	1,683	0	416	699	0	568	900	783	C	07/15 to 09/14	216
0132	Cottonwood	I	2	16,083	544	6,937	6,313	723	1,566	14,000	2,083	C	05/01 to 06/09	1,270
												S	05/05 to 06/10	
												S	11/16 to 12/31	
0133	Nowater	I	2	5,304	0	2,607	1,727	132	838	4,834	470	C	05/01 to 06/06	678
												C	11/01 to 12/31	
0134	Bonanza	C		1,707	114	877	337	196	183	1,606	101	C	08/15 to 10/14	141
0135	Nowater State	C		805	0	0	0	0	805		805	S	02/01 to 02/17	115
0136	Black Hills	C		612	0	394	41	103	74	612	0		None Designated	32
0137	South Ind.	I		990	0	577	138	85	190	650	340		None Designated	58
0138	Hurtig	I	3	1,674	129	744	544	141	116	1,674	0	C	04/21 to 06/20	258
0139	Individual	C		407	0	42	22	0	343	40	367		None Designated	7
0141	Greet Individual	M		949	290	391	97	149	22	272	677		None Designated	52
0142	Individual	I	1	2,459	405	1,310	86	0	658	1,700	759	C	05/20 to 07/10	788
												C	09/16 to 11/15	
0143	Medicine Lodge	I	1	12,634	1,683	6,886	1,388	158	2,519	9,300	3,334	C	06/01 to 10/10	1,200
0144	Lower Nowood	C		14,476	80	10,125	1,610	805	1,856	13,076	1,400	S	01/11 to 05/31	960
												C	11/01 to 06/06	
0145	Cedar Ridge	M		8,799	6,158	1,415	853	129	244	8,482	317	H	10/30 to 05/15	1,321
												S&C	04/21 to 06/15	
												S&C	10/11 to 01/10	
0146	East Allotment	I	2	3,333	286	1,266	929	0	852	703	2,630	C	None Designated	130
0147	West Allotment	I	3	4,233	100	1,968	1,920	18	227	3,076	1,157	C	05/10 to 07/09	515
												C	11/01 to 12/30	
0148	Renner Individual	I	1	16,299	4,279	6,517	1,592	275	3,636	11,052	5,247	C	05/15 to 10/31	1,186
0149	Lost Creek	M		1,242	45	591	0	0	606	19	1,223		None Designated	10
0150	Juniper Hills	M		655	0	603	0	52	0	655	0	H	05/16 to 12/31	56
												C	05/16 to 07/15	
0151	Homestead	C		913	314	324	28	181	66	192	721		None Designated	20
0152	Marys Hill	I	2	1,723	12	703	710	0	298	1,722	1	H	05/01 to 05/31	60
0153	Nowater	C		10,977	1,231	5,100	3,341	0	1,305	9,482	1,495	S	11/16 to 05/18	1,358
0154	Alkali	I	3	1,667	0	458	572	0	637	612	1,055		None Designated	111
0155	Rome Hill	I	2	4,335	0	1,058	29	0	3,248	975	3,360		None Designated	180
0156	Rome Hill	I	2	6,409	0	260	4,380	1,169	600	4,727	1,682	C&S	04/21 to 05/31	558
												C&S	09/16 to 12/15	
0157	South Butte	M		2,732	330	2,079	220	0	103	2,280	452	C	04/23 to 06/18	502
												C	11/08 to 12/30	

TABLE C-1 (Continued)

SUMMARY OF ALLOTMENT CONDITION AND AUTHORIZED USE

Allotment Number	Allotment Name	Mgmt. Status M,I,C	Rank[1] No.	Total Acres	Present Ecological Range Condition Public, Private and State Land Areas					Total Acres		Kind[2] of Livestock	Season of Use	Public Land AUMs
					Excel.	Good	Fair	Poor	Unclass./ Unmapped	Public Land	Other			
0158	Seaman	I	1	14,676	1,199	8,067	3,182	497	1,731	8,900	5,776	C	03/01 to 06/20	1,995
												C	09/11 to 10/31	
0159	Tie Down	C		4,685	0	2,119	1,024	794	748	3,244	1,441	C	05/01 to 09/15	93
0160	Spring Creek Common	I	2	3,302	150	1,301	1,019	0	832	1,557	1,745	C&S	None Designated	152
0161	Individual	C		2,582	0	678	510	0	1,394	2,434	148	C	11/10 to 12/09	219
0162	Slick Water	I	2	11,347	0	4,161	2,897	652	3,637	9,964	1,383	S	04/17 to 05/16	1,388
												S	11/16 to 02/28	
0163	Demer Nowater	I	3	6,483	128	2,322	1,807	158	2,068	6,237	246	S	05/26 to 06/10	803
												S	09/15 to 12/17	
0164	Cottonwood-N.Butte	I	2	10,490	560	4,764	605	2,994	1,567	10,299	191	S	03/18 to 04/17	425
												C	04/20 to 05/19	
0166	Jacobs Creek	I	3	1,765	0	146	1,377	96	146	622	1,143	C&S	12/01 to 01/09	
												S	05/05 to 05/25	103
0167	Rome Hill	I	3	3,251	0	497	1,957	103	694	1,405	1,846	C	05/26 to 06/05	
												C&S	05/26 to 06/30	239
												C	08/01 to 10/15	
0168	Lower Spring Creek	I	3	2,243	0	79	1,702	128	334	1,336	907	S	11/06 to 11/30	
												C	05/20 to 05/25	34
0169	Bader Gulch	M		1,778	0	0	0	0	1,778	200	1,578	C	11/17 to 12/01	
0170	Sand Creek	C		6,149	599	3,165	2,231	0	154	6,071	78		None Designated	40
0171	East Nowood	C		1,191	151	759	9	153	119	1,059	132	C	04/15 to 06/22	680
0172	West Nowood	I	3	1,064	0	452	406	0	206	906	158	C	12/01 to 01/15	179
0173	Tensleep	I	2	2,173	296	1570	141	64	102	2,033	140	C	04/10 to 06/24	39
												C	05/01 to 05/14	365
0174	Lower Brokenback	I	2	1,679	0	1669	0	0	10	1,595	84	C	12/10 to 01/09	
0175	Upper Brokenback	I	1	6,659	1,084	3,302	1,954	0	319	5,429	1,230	C	10/19 to 10/31	107
												C	05/15 to 06/14	606
0177	Red Sprgs Rock Bt	I	1	1,646	727	807	0	0	112	1,198	448	C	11/15 to 11/30	
0178	Mountain	I	1	2,583	664	1,543	62	0	314	1,196	1,387	C	10/01 to 10/31	207
0179	Tharp Individual	C		571	0	181	90	46	254	367	204	C	07/01 to 07/24	407
0180	Lost Creek	M		3,265	259	1,063	75	0	1,868	200	3,065	S	05/01 to 05/31	12
0181	Torchlight	C		20,749	1,096	4,897	12,488	104	2,164	18,340	2,409		None Designated	21
0182	Buttes	I	1	8,621	1,422	3,415	2,331	0	1,453	3,546	5,075	S	01/16 to 04/09	1,571
												C	05/01 to 06/15	864
0183	Onion Gulch	I	2	3,304	0	0	0	0	3,304	1,160	2,144	S	09/26 to 11/13	
0184	Sand Creek	C		13,936	536	8,102	1,834	700	2,764	12,069	1,867	S	06/16 to 09/25	209
												S	03/01 to 04/25	1,567
0185	Healy	C		10,763	192	3,444	4,446	0	2,681	10,093	670	S	12/24 to 01/15	
0186	Alkali	I	2	2,692	0	48	300	921	1,423	2,625	67	S	11/04 to 12/23	651
0188	Small Pasture	I	1	1,695	57	1,309	73	0	256	1,075	620	C	05/01 to 06/30	278
												H	05/10 to 07/11	114
0189	Jolly Pasture	I	1	1,427	40	649	565	0	173	844	583	C&H	10/25 to 11/14	
0190	Turner Pasture	I	1	2,016	472	794	0	0	750	761	1,255	C&H	05/15 to 07/11	210
0191	Lower Black Mtn	I	2	2,510	27	1,911	529	0	43	2,510	0	C&H	07/12 to 10/24	67
0192	Upper Black Mtn	I	3	2,272	176	1,379	560	17	140	421	1,851	C	05/10 to 08/05	407
0193	Mud Creek	I	3	630	0	454	132	0	44	202	428	C	08/06 to 11/05	80
													None Designated	33

TABLE C-1 (Continued)

SUMMARY OF ALLOTMENT CONDITION AND AUTHORIZED USE

Allotment Number	Allotment Name	Mgmt. Status M,I,C	Rank[1] No.	Total Acres	Present Ecological Range Condition Public, Private and State Land Areas					Total Acres		Kind[2] of Livestock	Season of Use	Public Land AUMs
					Excel.	Good	Fair	Poor	Unclass./ Unmapped	Public Land	Other			
0194	Upper Black Mtn	I	2	621	0	428	10	0	183	621	0	C	09/01 to 09/30	136
0195	Lower Black Mtn	I	1	780	0	164	457	0	159	346	434	C	06/01 to 08/15	64
0196	Lake Creek	I	2	1,395	0	459	442	25	469	472	923	C	11/16 to 02/28	58
0197	Duncan	M		454	122	270	49	0	13	375	79		None Designated	37
0198	Brokenback	M		324	25	54	46	4	195	167	157		None Designated	32
0199	Big Cedar	I	2	4,456	59	2,514	1,822	0	61	3,586	870	H	03/01 to 05/31	923
												C	04/16 to 06/20	
												C&H	11/01 to 02/06	
0200	South Individual	M		3,315	0	2,241	695	199	180	1,613	1,702	H	10/01 to 04/30	184
												C	04/01 to 06/30	
												C	11/01 to 12/31	
0201	Individual	C		474	0	94	334	0	46	124	350	C	05/01 to 07/31	15
0202	Airport	I	3	8,782	394	4,961	2,891	160	376	7,393	1,389	S	02/14 to 03/24	638
												S	04/25 to 05/05	
												C	04/25 to 07/15	
0203	Tobes Pastures	I	1	1,326	494	317	36	0	479	1,161	165	C	07/08 to 09/25	231
0204	North of House	I	2	2,901	81	1,858	503	432	27	758	2,143		None Designated	61
0205	Black Mountain	I	2	1,211	69	937	73	0	132	878	333	C	05/11 to 10/10	141
0206	Bear Creek	I	1	2,204	0	1,143	423	0	638	1,330	874	C	06/15 to 09/14	263
												H	06/15 to 10/15	
0207	Wall	M		2,697	54	1,434	717	0	492	250	2,447		None Designated	65
0208	Tom's	M		718	0	417	183	0	118	718	0	C	07/16 to 10/15	172
0209	French V	I	2	1,822	0	941	86	0	795	980	842	C	07/01 to 09/30	212
0210	Willow Creek	I	2	9,638	1,199	3,063	4,868	0	508	5,461	4,177	C	04/10 to 06/30	931
												C	11/16 to 02/28	
0211	Highway	I	3	251	0	156	27	4	64	251	0	C	05/01 to 05/31	18
0212	Homestead	I	3	237	17	36	94	20	70	111	126		None Designated	12
0213	Individual	C		136	49	65	10	10	2	101	35		Exchange of Use On1y	12
0214	Individual	C		386	0	0	0	0	386	87	299	C	05/01 to 05/30	5
0215	Deeded	I	3	4,959	607	3,535	195	378	244	2,334	2,625	C	04/12 to 06/30	408
0216	Mud Gulch	M		1,818	0	1,047	615	37	119	1,743	75	S	12/01 to 01/11	192
0217	East Alkali	I	1	5,788	1,213	2,039	1,576	582	378	4,175	1,613	S	05/01 to 05/31	314
												C	04/26 to 06/30	
												H	04/20 to 11/30	
0218	West Alkali	I	1	14,109	1,177	9,650	1,684	936	662	12,111	1,998	S	05/14 to 05/24	832
												S	11/21 to 01/11	
												C	10/01 to 10/31	
0219	Robson Mtn	M		904	391	210	210	0	93	196	708		None Designated	50
0220	East Flats	C		4,619	0	2,564	1,791	0	264	4,089	530	S	05/18 to 06/13	331
												S	10/16 to 10/30	
0221	Parker	I	2	2,446	130	952	1,179	144	41	1,846	600	C	05/16 to 06/25	136
0222	Anthony Timber	I	2	1,717	478	909	122	0	208	1,144	573	C	06/26 to 09/25	109
0223	Wood's Split Rock	I	3	2,331	0	1,618	482	0	231	300	2,031	C	06/16 to 07/15	75
0501	Kirby Creek	I	1	16,153	107	3,822	3,327	0	8,897	13,051	3,102	S	01/01 to 06/10	2,957
												C	03/01 to 10/15	
0502	South Lucerne Grp	I	3	4,808	57	2,877	177	235	1,462	4,808	0	C	05/16 to 09/30	525
												H	10/15 to 02/28	

TABLE C-1 (Continued)

SUMMARY OF ALLOTMENT CONDITION AND AUTHORIZED USE

Allotment Number	Allotment Name	Mgmt. Status M,I,C	Rank[1] No.	Total Acres	Present Ecological Range Condition Public, Private and State Land Areas					Total Acres		Kind[2] of Livestock	Season of Use	Public Land AUMs
					Excel.	Good	Fair	Poor	Unclass./ Unmapped	Public Land	Other			
0511	C Pasture	M		737	0	0	0	0	737	224	513	S	05/11 to 06/10	64
0517	Cedar Mountain	C		9,012	0	5,969	521	565	1,957	8,569	443	C	04/15 to 06/20	690
0518	Home Place	M		1,734	25	1,207	153	65	284	1,085	649	C	04/16 to 06/15	175
0547	Red Farm	M		1,524	387	648	170	82	237	1,122	402	C	08/29 to 11/14	172
0562	Gardner Badlands	I	1	11,958	5,837	3,966	1,217	441	497	11,641	317	C	04/01 to 05/31	1,934
												C	11/05 to 12/13	
0563	Winter Camp	I	2	5,422	0	2,638	2,240	0	544	2,305	3,117	C	06/01 to 06/30	341
												C	10/16 to 11/01	
0565	Red Hole	I	2	1,307	24	249	87	0	947	1,307	0	S	06/16 to 07/31	200
0570	Kirby Creek	I	3	6,428	1,522	902	2,135	239	1,630	6,428	0	C	01/01 to 06/05	900
0571	Zimmerman Buttes	I	2	4,071	0	625	654	30	2,762	4,071	0	C	10/20 to 12/31	503
0589	Kirby Creek	I	1	14,583	953	791	1,405	0	11,434	10,146	4,437	S	01/23 to 05/31	1,044
												C	10/01 to 04/30	
0591	Zimmerman Springs	I	2	5,728	5	2,408	2,727	134	454	5,027	701	H	12/01 to 02/28	
0592	Wild Horse Butte	I	2	1,670	0	0	0	0	1,670	1,286	384	S	10/21 to 01/22	476
												C	05/01 to 09/28	203
0602	Kirby Creek	I	2	6,451	93	1,690	567	26	4,075	5,155	1,296	S	10/01 to 10/20	
												H&C	05/01 to 06/10	869
0603	Nowater	C		2,719	79	546	660	0	1,434	2,280	439	C	01/01 to 02/28	
												C	04/01 to 04/30	431
0624	Individual	I	2	7,117	873	4,282	827	197	938	4,595	2,522	C	11/01 to 12/30	
0625	Freeman Draw	C		1,595	57	840	414	33	251	1,073	522	S	06/16 to 12/31	595
0649	Maret	M		646	32	397	136	0	81	548	98	C	05/20 to 06/17	134
												C	05/01 to 05/31	100
0656	Sand Draw	I	2	8,031	386	1,534	1,110	261	4,740	7,063	968	C	11/01 to 12/09	
												S	12/14 to 03/14	1,021
												C	04/16 to 05/30	
0658	Red Springs	I	2	2,286	229	704	411	70	872	2,031	255	C	10/01 to 11/21	
												C	06/07 to 07/15	385
0659	Black Willow	I	2	1,958	18	864	755	0	321	1,958	0	C	12/01 to 12/15	
												C	05/15 to 06/06	444
0660	West	C		906	0	755	69	0	82	792	114	C	10/01 to 12/07	
0667	Turk	M		3,006	0	0	0	0	3,006	300	2,706	C	07/01 to 08/30	106
1502	Jack Creek	I	2	2,518	0	1,598	337	0	583	384	2,134		None Designated	36
1503	Long Point	I	2	3,884	1,017	1,563	0	0	1,304	1,012	2,872		None Designated	39
1504	Torchlight	C		8,816	461	7,453	365	26	511	8,032	784	S	None Designated	181
1507	Mountain	I	1	6,789	1,253	3,538	1,419	0	579	4,165	2,624	C	12/01 to 02/10	509
												C	04/22 to 07/07	412
1508	Chimney Rock	M		781	0	547	167	0	67	700	81	C	09/01 to 09/30	
1510	Fox Mountain	I	2	12,645	1,149	7,386	1,768	1,287	1,055	12,531	114	C	05/01 to 05/31	36
1511	Lake Ridge	I	1	2,021	24	1,316	62	0	619	643	1,378		05/01 to 05/31	265
1513	Black Mountain	I	1	6,188	2,060	3,054	397	131	546	5,450	738	C	None Designated	157
1514	White Creek	I	2	1,751	215	1,277	13	0	246	153	1,598		05/21 to 06/20	295
1515	Dump	C		4,463	45	149	3,082	105	1,082	4,409	54	S	None Designated	99
1517	So. Individual	C		119	74	31	0	0	14	119	0	C	01/01 to 01/26	124
1519	South Shell	I	2	3,716	1,358	2,280	2	7	69	2,935	781	C	05/01 to 05/09	14
													05/01 to 07/01	380

TABLE C-1 (Continued)

SUMMARY OF ALLOTMENT CONDITION AND AUTHORIZED USE

Allotment Number	Allotment Name	Mgmt. Status M,I,C	Rank[1] No.	Total Acres	Present Ecological Range Condition Public, Private and State Land Areas					Total Acres		Kind[2] of Livestock	Season of Use	Public Land AUMs
					Excel.	Good	Fair	Poor	Unclass./ Unmapped	Public Land	Other			
1520	Poverty Acres	C		2,594	475	1,352	223	0	544	1,057	1,537	C	None Designated	54
1521	Individual	M		651	0	463	68	0	120	590	61	C	05/01 to 06/30	41
1523	Golf Course	C		611	0	541	0	0	70	480	131	C	05/15 to 06/14	20
1524	Alkali	C		306	0	275	31	0	0	306	0	C	06/15 to 07/14	26
1525	Potato	I	2	30,874	5,662	16,837	5,064	1,781	1,530	27,940	2,934	C	04/27 to 06/06	2,544
												H	05/02 to 05/18	
												C	11/01 to 01/20	
1526	Sabin	I	1	1,052	146	657	142	32	75	1,052	0	C	06/07 to 06/30	187
												C	10/01 to 10/30	
1530	Canal Ridge	C		2,197	0	353	1,629	73	142	683	1,514	S	05/01 to 05/30	25
1535	So Shell Group	I	1	13,359	3,348	6,938	1,759	470	844	12,534	825	C	04/26 to 07/10	1,160
1536	White Creek	I	1	8,363	742	4,376	1,703	31	1,511	5,868	2,495	C	04/28 to 07/30	634
												C	09/11 to 10/30	
1537	Potato Ridge	C		9,147	0	4,010	3,133	0	2,004	8,800	347	S	11/01 to 01/31	539
1539	Lower White Creek	M		1,116	23	833	260	0	0	842	274	C	05/01 to 06/30	77
2001		M		375	0	194	125	0	56	375	0		None Designated	80
2002		M		152	0	58	36	0	58	152	0		None Designated	38
2003		M		2,234	0	0	0	0	2,234	80	2,154		None Designated	20
2004		M		478	0	224	41	0	213	478	0		None Designated	66
2005		I	1	1,036	0	594	161	0	281	1,036	0		None Designated	260
2006		M		34	0	26	0	0	8	34	0		None Designated	10
2007		I	1	1,367	0	553	306	0	508	1,301	66		None Designated	318
2008		I	3	238	0	36	8	0	194	75	163		None Designated	72
2009		M		1,075	0	0	0	0	1,075	80	995		None Designated	10
2010		M		536	0	249	91	0	196	536	0		None Designated	124
2012		M		4,028	0	0	0	0	4,028	4,028	0		None Designated	841
2013	Harriet	M		748	20	515	5	0	208	748	0		None Designated	163
2014		M		479	0	155	0	0	324	158	321		None Designated	26
2015		I	2	163	45	0	110	0	8	163	0		None Designated	44
2016		M		146	0	140	0	0	6	146	0		None Designated	70
2017		M		293	40	195	30	0	28	293	0		None Designated	78
2018		I	3	3,320	0	0	0	0	3,320	1,368	1,952	S	08/01 to 11/30	109
2019	Hazen Draw	I	2	3,760	0	0	0	0	3,760	400	3,360	S	None Designated	80
2503		I	1	16,352	0	0	0	0	16,352	4,570	11,782		None Designated	828
2506	Dye	I	1	6,386	0	0	0	0	6,386	2,868	3,518	S&C	None Designated	460
2507		I	1	3,202	0	1,253	312	2	1,635	1,342	1,860		None Designated	300
2509	Peak Pasture	I	1	9,809	0	1,560	0	0	8,249	3,162	6,647		None Designated	861
2512	Janes	I	1	3,532	0	126	432	0	2,974	520	3,012		None Designated	122
2513	Kirby Creek	I	3	486	0	0	0	0	486	242	244		None Designated	30
2514	V-H Draw	I	1	11,741	0	0	0	0	11,741	2,985	8,753		None Designated	473
2515	Copper Mountain	M		1,970	0	0	0	0	1,970	238	1,732		None Designated	48
2516		I	2	1,789	0	0	0	0	1,789	414	1,375		None Designated	67
2521		I	2	2,649	0	0	0	0	2,649	1,549	1,100		None Designated	240
2525		I	1	5,316	0	0	0	0	5,316	440	4,876		None Designated	75
2529		I	2	1,993	0	0	0	0	1,993	241	1,752		None Designated	51
2530		I	2	2,333	0	0	0	0	2,333	540	1,793		None Designated	95
2531		I	2	2,943	0	0	0	0	2,943	120	2,823		None Designated	24

TABLE C-1 (Continued)

SUMMARY OF ALLOTMENT CONDITION AND AUTHORIZED USE

Allotment Number	Allotment Name	Mgmt. Status M,I,C	Rank[1] No.	Total Acres	Present Ecological Range Condition Public, Private and State Land Areas					Total Acres		Kind[2] of Livestock	Season of Use	Public Land AUMs
					Excel.	Good	Fair	Poor	Unclass./ Unmapped	Public Land	Other			
2536	Basin	I	1	2,086	0	0	0	0	2,086	2,086	0		None Designated	404
2538		I	1	11,418	0	0	0	0	11,418	2,340	9,078		None Designated	910
2541		I	3	1,051	0	0	0	0	1,051	839	212		None Designated	58
2542		I	2	1,074	0	0	0	0	1,074	440	634		None Designated	96
2543		I	2	4,413	0	0	0	0	4,413	698	3,715		None Designated	156
2546	Major Basin	I	2	5,613	0	0	0	0	5,613	3,749	1,864	C	04/10 to 06/10	812
2547	V Pasture	I	2	4,321	421	2,368	494	398	640	2,213	2,108	C H S C	11/10 to 12/31 03/01 to 10/31 06/01 to 11/30 08/01 to 02/28	396
2548		I	3	77	0	35	37	0	5	40	37		None Designated	8
2549	Brians Individual	I	2	2,034	16	1,627	113	7	271	774	1,260		None Designated	95
2550	Melton Mountain	I	2	3,931	0	0	0	0	3,931	632	3,299		None Designated	104
2552		I	1	10,197	0	0	0	0	10,197	2,424	7,773		None Designated	454
2554		I	1	8,726	0	0	0	0	8,726	2,217	6,509		None Designated	373
2556		I	1	4,585	0	0	0	0	4,585	755	3,830		None Designated	215
2558		I	1	639	0	0	0	0	639	76	563		None Designated	71
2559		I	1	4,695	0	3,758	514	0	423	2,601	2,094		None Designated	646
2560		I	2	160	0	143	0	0	17	160	0		None Designated	32
TOTALS				1,518,634	149,700	622,563	308,694	43,931	393,746	1,096,843	421,791			142,677

[1] Priority for action within "I" Category allotments

[2] C = Cattle S = Sheep H = Horses

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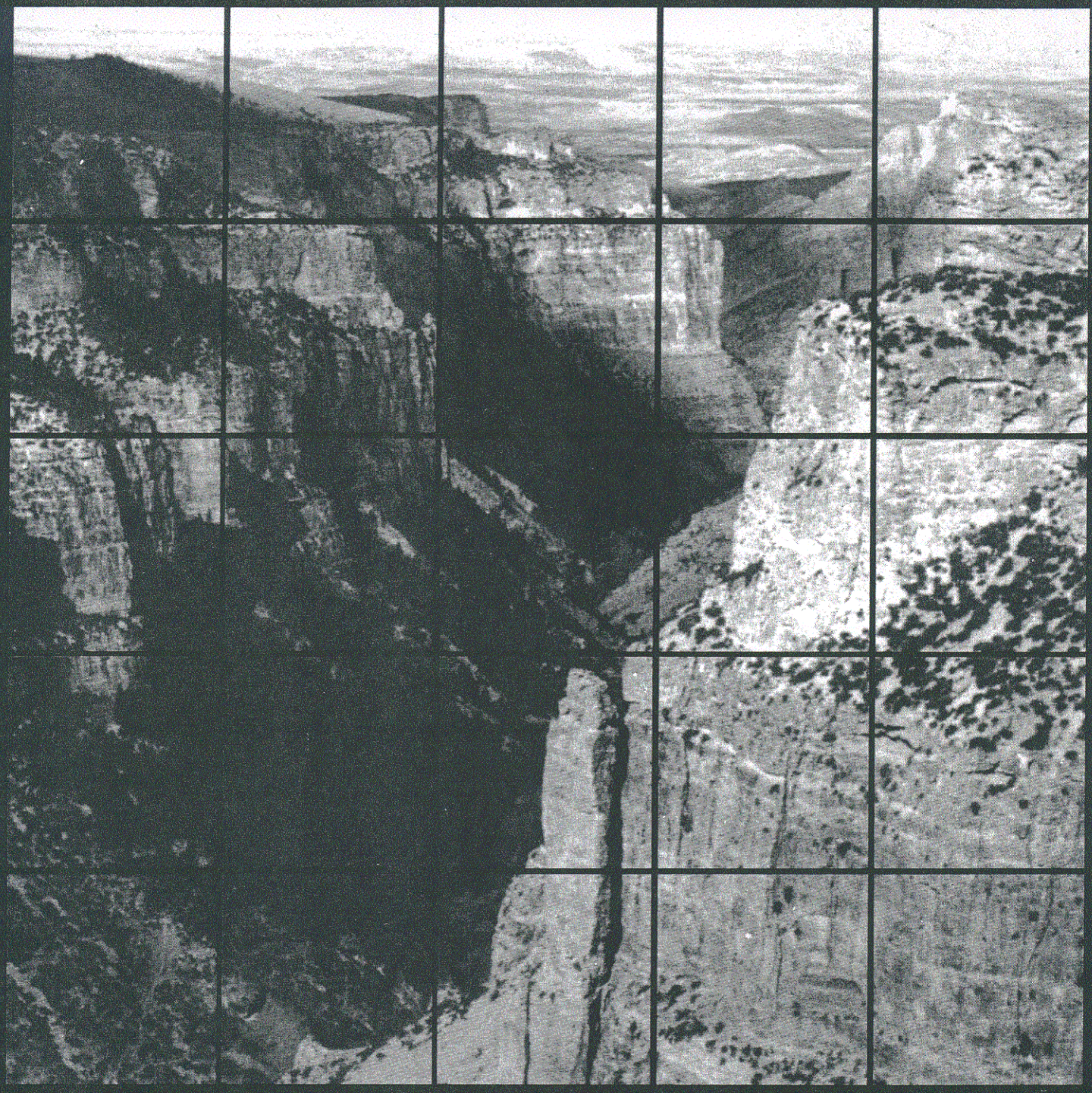

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Washakie Resource Area, Wyoming

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